ESTABLISHED IN 1872

PAPER TRADE JOURNAL

With Which Is Combined

Vol. XCVI, No. 19 — PAPER — Thursday, May 11, 1933

Paper Makers From North Visit Savannah

Leave New York by Boat April 28 and Return May 6, Principally for the Purpose of Inspecting Experimental Pulp and Paper Mill Where, Under the Direction of Dr. Herty, White Paper is Being Made from Pine Which Heretofore Has Not Been Considered Adapted to this Purpose—Varied Entertainment is Provided

Probably one of the most enjoyable paper functions ever held was the meeting on May 1 to 3 in Savannah, Ga., when the pulp and paper makers of the United States and Canada were the guests of the Georgia Forestry Association at its eleventh annual meeting. In so far as the paper manufacturers were concerned the meeting was successfully launched with a delightful cruise on the Savannah Liner "City of Montgomery," which steamed out of New York harbor on April 28. Muffled in overcoats and armed with cameras and field glasses the travelers lined the deck rails but as the ship neared the warmer clime of the Gulf Stream the appearance of all took on a more tropical aspect and all arrived in Savannah with a bounteous coat of real sun tan.

Arriving in the famous and beautiful old Georgian city, the visitors were taken in hand by the citizens of the azalea city and from then on not a moment passed that was not one of pleasure and profit. It is doubtful if any group was ever more royally entertained.

The headquarters for the paper makers was at the beautiful De Soto Hotel, a landmark of Old Savannah, an ancient hostelry in the shadow of great old trees and equipped with spacious lobbies and a large outdoor swimming pool.

Papers Presented

W. G. MacNaughton, former secretary of the Technical Association of the Pulp and Paper Industry was given a hearty ovation when he presented a paper on "Georgia Pine Sulphite and Ground Wood for News Print." Associated with him in presenting the paper was W. F. Allen of the Georgia Department of Forestry.

In this paper it was pointed out that if heartwood was eliminated, good quality groundwood and sulphite can be produced. An average sulphite yield of 45 per cent and a groundwood yield of 93 per cent was obtained. No unduly high amount of power was required for grinding.

Col. E. George Butler, of Savannah, spoke on the "Economic Advantages of Georgia for Manufacturing Paper." In this address the water supply, labor, raw materials, fuel, construction costs and other industrial items were discussed.

C. W. Boyce, executive secretary of the American Paper and Pulp Association read a paper on "Regional Competition in Pulpwood." In this paper the advantages and disadvantages of the South as a paper making section were presented. The present upset economic conditions in the paper industry and high freight rates were cited as disadvantages, but the great supply of cheap raw material in the South was given as an advantage. It was shown that the Southern consumption of news print is but six per cent of the nation's total, or 225,000 tons annually, and could support but two mills.

Laboratory Visited

Following a luncheon, the delegates visited the pulp and paper laboratory and viewed the machinery operation and manufacture of ground wood, sulphite, and news print. Nearly everyone was impressed with the large size of the experimental mill with its new equipment. The mill was described recently in the PAPER TRADE JOURNAL. The whiteness of the sulphite pulp led many to believe that it had been bleached but such was not the case.

Banquet Features

In the evening a banquet was attended by several hundred people and the speaking program was broadcast through the South by the National Broadcasting Company.

Mayor Gamble, of Savannah, who is also editor of the *Naval Stores Review*, was the first speaker and paid a high tribute to the work of Dr. Herty. He pointed out that there were 15 million acres of land available in Georgia for pine pulp wood.

Allen Abrams, president of TAPPI, was the next speaker and pointed out that the South must have patience with research and not expect miracles. The problems to be met and solved will be many and five years are not too few in which to expect worthwhile results. The needs of a paper industry for an adequate cold, clean water supply and low cost materials was stressed.

R. G. Macdonald, Secretary of TAPPI, Col. E. George Butler, and Dr. C. H. Herty, were introduced and made brief remarks.

Paper Makers See Pines

On Tuesday the entire party was taken on a motorcade through 160 miles of pine country. Miles and miles of pine woods were passed, including 75,000 acres owned by Henry Ford.

At Hinesville, Georgia, the party was treated to an old

(Continued on page 25)

Wisconsin Paper Manufacturers Optimistic

Sales Manager L. G. Wood, of Northern Paper Mills, Green Bay, States Purchasers Anticipate Firmer Prices—President A. E. Cofrin, of Fort Howard Paper Co., Green Bay, Finds Confidence Being Restored—Railroads Report Increased Tonnage Movement

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., May 8, 1933—With more than seasonal gains reported by some of the mills, Wisconsin looks forward to a gradual upturn of orders and most of the manufacturers believe it will be a permanent trend and not temporary. Returning from an extensive trip during which he checked up on conditions, L. G. Wood, sales manager of the Northern Paper Mills, Green Bay, Wis., said. "There is no question about a better feeling among purchasers. They are easier to sell than they have been in a long time. There is a tendency to buy ahead. Buyers are anticipating stronger prices. It is all encouraging and it is reflected in our business, which is a little better."

A. E. Cofrin, president and general manager of the Fort Howard Paper Company, Green Bay, Wis., declares that his mill is exceedingly busy on orders on file and expects the first quarter of this year will equal that of a year ago. He finds confidence is being restored, reflected partly in the upturn of the stock market.

Railroads operating in paper mill sections report an increase in paper shipments during the last few weeks, and have found it necessary to add more trains to take care of this and other business.

In the Wisconsin River Valley section around Wausau, Wis., a better tone is also noted, and orders are coming in at a satisfactory rate.

Milwaukee's box and carton industries continue to show gains. The Manufacturers' Box Company, owned by a group of shoe concerns, reports capacity production, according to D. R. Lepper, manager. The container production is comparable with the output back in 1928, which was considered very good, he says. The plant has been running high production schedules practically all year. It still is and expects to continue to do so. The normal forces of sixty are busy eight hours a day and five days a week, with some work on Saturdays. With retail outlets not ordering shoes too far in advance, Mr. Lepper looks for an even larger volume in the future.

Fire Destroys Paper Stock

About 250 tons of baled waste paper were lost in a $15,000 fire last week at the Menasha Mill Supply Company, Menasha, Wis. The fire started from spontaneous combustion in the upper story during the afternoon while the crew was on duty, and spread rapidly through the bales. Fire apparatus from three cities worked many hours to extinguish the stubborn fire. The entire upper story of the building was destroyed.

Rebuilding will be started as soon as the losses are adjusted with the insurance company, according to F. M. Rosenthal, manager. Temporary headquarters have been established in another building. The plant contained about 1,000 tons of paper and most of it was damaged by water where not consumed, but there will be a considerable salvage. Very little damage was done to the machinery.

Another small fire occurred last week at the Edgewater Paper Company, Menasha, Wis., when a blaze started in a barrel of rags from spontaneous combustion. The automatic sprinkler system extinguished the blaze, and most of the damage to stock was caused by water. The loss is small.

News of the Industry

The Combined Locks Paper Company, of Appleton, Wis., is preparing to take over the building at Kaukauna, Wis., formerly housing machine shops of the Chicago and Northwestern Railway. The machinery has been dismantled and moved to the shops of another division. The paper company expects to use the building as a storage warehouse.

The Combined Locks company buys annually about 10,000 tons of used telephone books from New York, Philadelphia and Baltimore to be de-inked and used at the mill at Combined Locks, Wis. Railroads have applied to the Interstate Commerce Commission for a reduction from 45 cents to 30 cents a hundred pounds on these shipments, to meet canal and lake competition. The commission has the matter under advisement.

Although there is little expectation of floods, paper mill owners and the United States government have been notified by the Association for the Relief of High Water that they will be held responsible for any damage to riparian lands, located along the Wolf and Fox rivers. The water level has reached about 16 inches above the crest of the Lake Winnebago control dam at Menasha, Wis. A level of 21 inches is permitted. The move was made to compel the opening of more sluice gates, but the water power interests are averse to an unreasonable lowering of the lake level, desiring that as much water as possible be stored for the summer season. The level is the highest in two years, indicating that the drought problem of the last few seasons will be minimized.

Congressional appropriations to furnish employment on public works projects will mean the improvement of waterways in Wisconsin, along the rivers and at ports on the Great Lakes. One of the most important undertakings will be the improvement of the harbor at Green Bay, and the channel of the Fox River. These facilities are used extensively by the paper mills, especially at Green Bay, and will mean more adequate docking facilities. These improvements take into consideration eventual completion of the Great Lakes-St. Lawrence Waterway, and the arrival of larger ocean vessels at Wisconsin ports.

Construction of a small sub-station will be started by the M. & M. Light and Traction Company, at Marinette, Wis., the cost to be about $3,000. It will mean an improvement of the power facilities at the new plant of the Marinette & Menominee Box Company, Marinette.

Further improvement of the grounds adjacent to the mills is being made by the Badger Paper Mills, Inc., Peshtigo, Wis. A large tract is being levelled and seeded, and the company is furnishing a caretaker to keep the grass cut. The company has donated a baseball diamond, a tennis court and a swimming pool to the community, located on its lands, and will make a larger area available for public use through the added improvements.

Employees of the Thilmany Pulp and Paper Company, Kaukauna, Wis., are donating their services in the erection of a 200-foot suspension bridge across the Wolf River at Gardner Dam. A new Boy Scout camp donated by the Wisconsin-Michigan Power Company, is located there, and the bridge will be used by the campers. Charles Seaborne, chief engineer of the Thilmany company, is in charge of the project.

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The Lorain Steel Company
Tennessee Coal, Iron & R. R. Company
Universal Atlas Cement Company

Pacific Coast Distributors—Columbia Steel Company, Russ Building, San Francisco, Calif. *Export Distributors*—United States Steel Products Company, 30 Church Street, New York, N. Y.

Abitibi Power Now Ready for Distribution

Two of Five Units of New Plant Will Develop 100,000 h.p. Towards End of Week — Total Capacity of Canyon Project Will Amount to 275,000 h.p. When Completed — Beginning of New Era In Development of Northern Ontario's Natural Resources

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., May 8, 1933—At the end of the current week Abitibi power will be available for distribution, when 10,000 h.p. will be turned into the lines built to supply the International Nichol Company, at Sudbury. In a statement issued by the chairman of the Hydro-Electric Power Commission of Ontario, the transactions which brought the much-discussed development into the fold of public ownership were reviewed.

For the present two of the five units of the new plant will develop the 100,000 h.p., but when it is put fully into operations 250,000 h.p. will be available for the great mining areas. It is not the intention of the Commission to proceed immediately with an extension of the operation beyond the two units. Mr. Cook, chairman of the Commission has this to say about the taking over of the Ontario Power Service Corporation, which is a subsidiary of the Abitibi Power and Paper Company, now in receivership:

"This will be the beginning of a new era in the development of the immense natural resources in timber of minerals in this vast area of Northern Ontario, making available low-cost power under public ownership principles, in which the customer receives the benefit of cost, based upon sound business principles. The Commission will proceed with the completion of the work to an extent necessary to make available the 100,000 h.p. and additional capacity as conditions require, or is in the interests of Northern development. The total capacity of the Canyon development will be 275,000 h.p. when fully completed.

Further Restriction of Paper Output

In news print circles in Canada it is foreseen that further restriction in news print mill operations, with the concentration of production in a dozen or so of the lowest cost mills, will take place within the next six months. As far as can be ascertained at this time 21 of the 28 major mills are in operation. Those mills that are operating are down to less than half of their rated capacity. In some instances operations are below 25 per cent of capacity. With the elimination of Ontario Paper, Mersey Paper and Spruce Falls Pulp and Paper, and Canadian International Paper, the average of operations for the balance of the industry is below 40 per cent. The length of life of the mills at present in operation depends largely on how long their wood piles will last. It is common knowledge that for some time past few companies have been conducting woods operations. Most of the wood being converted into paper now is wood that was cut two or three years back. The wood piles, with a few exceptions, are getting low, and by the end of the next six months the supply will be very limited.

Will Double Lakes Paper Output

Commencing the first week in May the second paper machine of the Great Lakes Paper Company was brought into service at the plant in Fort William, Ont., doubling the output. With the increase in production of paper due to the starting up of the second machine the entire crew on the payroll will be back on full time. For the past several months these men have been on half time only. Officials say that no new men will be taken on. With both machines running the output per day will be increased to 325 tons. The days run at present averages between 150 and 175 tons. Both machines will be operated at full capacity for five days a week, it is stated. It is announced that the paper storage shed and the conveyor for loading boats have been completed and are ready for operation. It is expected that numerous boat loads of paper will be shipped from the huge plant during the next month or two.

Notes and Jottings of the Trade

George C. Winlow, sales manager of the Alliance Paper Mills, Ltd., Toronto, left recently on a business trip through the Canadian West.

Warwick Bros. & Rutter, manufacturing stationers and paper box manufacturers, Toronto, have a fine display of holiday papeteries designed for next Christmas trade at their plant on King street West, Toronto. There are some decidedly attractive novelties in the papeterie line which are now being sold by the company's staffs throughout Canada.

It was stated by John Atkins, secretary of the Toronto Typothetae, at a dinner meeting of the organization a few days ago, that conferences had been held between the employing printers and the paper merchants on the subject of credits and that as a result credit henceforth would only be accorded to those purchasers of paper and printing who were able and willing to pay.

E. C. Gain, who has been associated with the Ratcliff Paper Company, York street, Toronto, and for some years past sales manager of the concern, has severed his connection with the organization. Robert Jennings, an old employee of the company, is acting in the capacity of sales manager meanwhile.

An announcement was made a few days ago that British and Canadian manufacturers of glazed and unglazed kraft paper had arrived at an understanding to limit production so as to steady the market for their products.

The Canadian Paper Box Manufacturers' Association, which will hold its annual convention at Bigwin Inn, June 26 and 27, has already arranged its program of speakers. These include D. E. A. Charlton, editor of *Modern Packaging;* Arthur E. Allen, outstanding authority on color and paper box manufacturing; Professor E. D. McPhee, formerly of McGill University, Montreal; Thornton Purkis, advertising counsellor, Toronto; C. F. Winchell, vice-president and general manager Hinde & Dauch Company of Canada; J. A. Northey, Telfer Paper Box Company, and C. V. Hodder, managing secretary Canadian Paper Box Manufacturers' Association.

A Correction

In the article entitled "Notes on the Development of the Manufacture of Sugar and Alcohol from Wood," assembled and translated from the German by Alfred Hurter, printed in the issue of the PAPER TRADE JOURNAL of March 16, 1933, a typographical error occurred on page 21 at the end of the paragraph at the top of the page, first column. The concluding sentence read: "By this means 100 Kilogs. of soft dry wood substance will yield 25 litres of 100 per cent alcohol (corresponding to 35 imp. gallons per ton)." This should have read 55 imp. gallons, running the output per day will be increased to 325 tons.

Boston Paper Market Conditions Improving

Demand for Various Standard Grades of Fine Paper Better, With Movement of Tonnage Expanding—Book and Cover Papers Display Upward Trend—Volume of Wrapping Paper Sales Increases Materially—Summer Specialties Moving More Freely

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., May 8, 1933—Business continued generally good among paper jobbers here during the week, with a slight tendency towards more improvement. Collections, however, are poor. In fine papers, some are strong in price and on the upward trend, with a good tonnage moving. In sulphite bond, mimeograph papers, and those used for office supplies there is a little improvement. In some cases, manufacturers have withdrawn prices. The situation in book and coated papers is somewhat unsettled, with readjustments taking place, although the trend is upward.

The better feeling which prevailed in wrapping paper the last few weeks persisted, with orders a bit more frequent. On the whole, the volume of sales showed material improvement. In one case, at least, surprise orders were received, so that the house was temporarily cleaned out of certain grades. No radical price advances have been made as yet, but dealers are looking for them. Specialties for shore resorts, etc., continue to move very well. For these surprise orders were also received. Box board is marking time to a certain extent, although some fair-sized orders were booked. Prices remain at the same levels.

Inflation of the dollar has tended to stimulate buying of paper stock, although few price advances have taken place. One firm experienced the best week in years, in waste paper, selling eighteen carloads, including a quantity of paper wool strings at .87½. Foreign gunny bagging moved at .80. All twines have advanced and the tendency is towards higher levels.

Wood Pulp Freight Tariffs

The Interstate Commerce Commission has suspended the proposed increased rates on import and intercoastal wood pulp from the Port of Boston to important wood pulp receiving points in the Middle West, including paper mills in Michigan, Wisconsin, Ohio and Illinois, until December 5. The Maritime Association of the Boston Chamber of Commerce, the Boston Port Authority and the New England Paper and Pulp Traffic Association have been working against the proposed rates.

The railroads serving New England had filed with the Interstate Commerce Commission new freight tariffs increasing the rates on wood pulp from Boston 40 cents per ton, while at the same time increasing the rates from New York at 20 cents per ton and allowing the rates on this commodity from Portland, Me., to remain unchanged. Heretofore, the rates on wood pulp from all three cities were on the same basis. This action by the railroads serving New England, if allowed, would deprive the Port of Boston of practically all of its wood pulp import shipments. The proposed rates, as filed by the railroads, would have become effective May 5 if they had not been suspended by the Interstate Commerce Commission. A date for a hearing is to be set.

News of the Trade

A sales meeting in regard to products of the Scott Paper Company was held at the office of Carter, Rice & Co. Corp., Saturday morning. William Mohan, general sales manager of the Scott company, spoke on the policies and history of the company and what it is trying to do in the maintenance of the quality of product. Frank Winter, sales manager of Carter Rice & Co. Corp., presided at the meeting.

A very attractive display of all Strathmore papers, featuring the Strathmore weddings is in the window of Carter, Rice & Co., on Devonshire street.

John Carter & Co., Inc., is sending out its pre-inventory issue of the Boston Blue Book of Bargains, covering paper, card board, and envelopes.

Harrie E. Waite, one of the executives of John Carter & Co., Inc., underwent today an operation for the removal of cataracts from one eye. A similar operation will be performed on the other eye later. A group of employees of the company gathered about his desk Saturday noon at the close of business, wishing him well.

Knight, Allen & Clark, Inc., has added to its papers a new line of unwatermarked Argonne Ledger, of which the unit price is 9 cents per pound.

Cards from Palestine have been received by members of the trade from Samuel Manaster, of the Atlantic Paper Box Company, who is making an extended trip abroad.

Samuel B. Sutphin, president of the Beveridge Paper Company, Indianapolis, Ind., and Alan B. Helfrich, of the Orono Pulp and Paper Division of the Eastern Manufacturing Company, called on the trade recently.

Miss Nancy Ladd, daughter of Mr. and Mrs. William E. Ladd, of Hinckley road, Milton, is to be married June 9 to Alvah Crocker, of the Crocker, Burbank & Co.. Association, Fitchburg, Mass. The ceremony is to take place at noon at Trinity Church, this city.

J. J. O'Sullivan, Inc., Succeeds M. J. Leahy

J. J. O'Sullivan, Inc., have purchased the pulp and paper business of the late Maurice J. Leahy and removed the office to 103 Park avenue, telephone Lexington 2-4785. Mr. O'Sullivan, the head of the new concern, was associated in business with Mr. Leahy for a long number of years and is widely experienced in various branches of the paper business.

Mr. O'Sullivan in his announcement of the new firm says that its mill connections are such that it can make prompt deliveries and look efficiently after all the requirements of customers.

J. J. O'Sullivan, Inc., have been appointed Eastern agents for the Wisconsin Wire Works, well-known fourdrinier wire manufacturers, of Appleton, Wis.

Standard Belt Fastener Co. Formed

W. C. Duff, for many years associated with the Bourne-Fuller Company, of Unionville, Conn., which more recently has been owned and operated by the Republic Steel Corporation, has purchased the Belt Fastener Branch of their business. The business will be carried on under the name of the Standard Belt Fastener Company, Unionville, Conn. Mr. Duff for many years has been identified with belt fastener manufacturing, and is the inventor of several types of belt fasteners now commonly used, his latest invention being the "Self Aligning Belt Fastener."

New Zealand Organizes Pulp and Paper Industry

Resulting From Forestation Program Inaugurated In 1896, State Plantations Now Cover Area of Approximately 350,000 Acres and Those of Commercial Concerns About 276,924 Acres —Canada Looks for Larger Proportion of News Print Paper Trade

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., May 8, 1933—In New Zealand, which is a substantial purchaser of paper and paper products, steps are now being taken to organize a pulp and paper industry on a considerable scale. A report just received from C. M. Croft, Canadian Trade Commissioner in Auckland, gives this news, stating that it follows upon an afforestation program dating back to 1896. As a result of this program state plantations now cover an area of nearly 350,000 acres, and those of commercial concerns 276,924 acres. The trees planted have grown well, and consideration of the use to which they will be put has resulted in the present plans to organize a pulp and paper industry.

New Zealand's imports of news print are largely supplied by Canada and the United Kingdom. In 1932 Canada supplied 232,525 cwt., valued at £181,669, being 56.5 per cent of the total imports of this commodity. It is expected that the proportion will be larger from now on as a result of the new trade agreement between Canada and New Zealand, as while there was no customs duty on news print last year the market was not at that time particularly sympathetic to Canadian products.

Canada is also by far the leading supplier of wrapping paper, the Dominion's share of the trade, amounting in 1932 to 57,095 cwt., being slightly over 70 per cent of the total.

Canadian Exports to Japan Increase

Due to the fact that the Japanese market was thoroughly explored in 1932 by Canadian news print executives, Canada's exports of printing paper to that country last year resulted in 67 per cent of the total Japanese trade in that commodity coming to Canada, as compared with 24 per cent in 1931. Of the total imports of 39,342 tons Canada's share was 26,891 tons. Canada's share of the imports of pulp in 1932 was 30,371 tons against 55,281 tons in the previous year. Other suppliers of importance were the United States, Norway, and Sweden. The increase in rayon production has naturally been accompanied by an increase in the imports of high-quality pulp from Norway and Sweden, and the fact that these two countries are on a sterling exchange basis gives them also a considerable advantage in the ordinary pulp trade.

B. C. Pulp Seeks to Waive Bond Interest

As a result of a sharp reduction in earning power and the necessity of conserving the company's working capital position, the British Columbia Pulp and Paper Company will put a proposal before the bondholders on May 26 to accept income script for the regular coupons for 1933 and 1934 and to cancel sinking fund payments until November 1, 1935.

Last year the company had an operating loss, before interest and depreciation, of $76,206. Reduction in world prices for the company's products, and the disorganization of markets consequent upon the continued depreciation in currency, particularly in the Orient, make it advisable not to rely upon any great improvement in the immediate future. Economies, which have been in force for some time, have not proved sufficient to maintain the company's working capital position, so that the bondholders are now being asked to forego interest payments over the next two years.

At the end of last year the company's capital set-up included $3,321,000 of first mortgage bonds; $1,445,400 of general mortgage bonds; $556,200 of 7 per cent cumulative preference stock and 100,000 share of no par value common stock.

No dividends have ever been paid on the common stock, while distribution on the preferred shares was discontinued after August 1, 1931. On May 16, 1932, the general mortgage bondholders approved the postponement of interest payments due in 1932 and 1933 until November 1, 1934, interest to accrue at 7 per cent on deferred payments, while sinking fund payments due in 1932, 1933 and 1934 were cancelled.

Bids Asked on Waste Paper

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., May 10, 1933—The Government Printing Office will receive bids on May 29 for the purchase of the following amounts of waste estimated for the fiscal year beginning July 1:

50,000 pounds white and colored shavings from blank books etc.
300,000 pounds shavings from book and mimeograph papers etc.
400,000 pounds white shavings from book papers etc.
200,000 pounds white and colored shavings and clean waste.
200,000 pounds news print and wood manila shavings.
150,000 pounds postal card bristol trimmings.
70,000 pounds used white monotype keyboard paper.
200,000 pounds binders board, strawboard, etc. shavings.
2,000,000 pounds paper wrappers from rolls etc.
350,000 pounds printed waste paper etc.
300,000 pounds discarded publications.
4,000 pounds wrapping twine and rope from bundles.
15,000 pounds waste and scrap book cloths.

United Container Men To Meet

The regular bi-monthly meeting of the United Container Association will be held at the Congress Hotel, Chicago, Ill., on Tuesday and Wednesday, May 23 and 24. The schedule for the two days has been laid out as follows:

TUESDAY, MAY 23

9:30-10:30 A. M.—Membership Committee
10:30-11:30 A. M.—Traffic Committee
11:30-12:30 P. M.—Standardization Committee
2:30- 3:30 P. M.—Cost & Statistical Committee
3:30- 5:00 P. M.—Executive Committee

WEDNESDAY, MAY 24

10:00 A. M.—General Association Meeting
1:00 P.M.—Luncheon and Forum

At the Luncheon and Forum E. E. Scharff, president Scharff-Koken Manufacturing Company will lead a discussion on: "Recent Economic Developments as They Affect Our Industry."

At the general meeting W. D. Lane, president, Eggerss-O'Flyng Company, will lead a discussion on: "How Can We Create a Better Competitive Spirit?"

Philadelphia Paper Market Rather Spotty

Demand for the Various Standard Grades of Both Fine and Coarse Papers Continues Listless, With No Real Gains Registered—Sentiment In Paper Stock Market Improves—Quotations on Lower Grades of Waste Paper Decidedly Firmer

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., May 8, 1933.—The greatest material gain—and the term can properly be used in a relative, not in a positive sense—in a rather spotty week accrued to the long suffering paper stock industry. In it there was registered for the first time this year a definite general advance in the price which the mills now will grant. It is true that this increase ot at most a dollar a ton and usually some lesser amount is not in itself very substantial but it is regarded as a sure index not only of trade conditions so far as paper stock trade is concerned, are moving, but as a foretaste of the paper market generally.

Thus far the better prices apply only to the very cheapest grades of mixed, container, and old news. But even with the advance of a dollar a ton, packers say that the price is still at least a dollar a ton below one which offers any attraction at all for them to gather up this grade of material. However, majority opinion seems to be that it is but a forerunner of better prices in the near future because coupled with it is a larger amount of inquiry than has been enjoyed for some time.

These inquiries have brought out the fact that the Philadelphia market, at least, is virtually exhausted of these cheap grades, and, of course, it is inevitable that the desire of the mills to secure stock can only be successful with better price inducements. A number of the larger packers made inquiries of each other during the week, hopeful of securing supplies sufficient to meet the requirements of their customers. And so this very hopeful condition exists in this branch of the industry—that there are actually on the books, orders for a larger amount of stock than they are able to supply.

Work of the Paper Trade Association

Infinitely more improvement was evidenced by a prospective benefit to the printing trade immediately, and to the extent that the printers are the chief customers of the fine paper houses, to the paper trade, which was opened up in a letter received by President William A. Hentz of the Paper Trade Association from George McCorkle, acting director of the Trade Practice Conferences in Washington. It will be recalled that in these columns for several weeks past, references have been made to the fact that an effort was afoot to secure the aid of the Government in abolishing the manifold evils of unfair competition.

The Philadelphia paper trade, as doubtlessly is the industry in all other cities, has been a great sufferer from the financial embarrassment of the printing industry, specifically as suggested in these columns a week ago, through substitution of inferior grades or of lesser weights by printers who were able to underbid their legitimate competitors and who, finally stepped out of the picture through the bankruptcy courts and under the constable's hammer, not, however, before large amounts of harm had been done.

In his communication to President Hentz, Director McCorkle indicates his interest in the matter brought to his attention by the association and makes request for a fuller statement, and particularly as to the relationship the Philadelphia situation bears to inter-state business. It is understood that it is only if inter-state business is affected can there be the thorough intervention that is desired. The information desired will, of course, be furnished to him, and the situation probably be discussed very thoroughly at the meeting of the Paper Trade Association to be held on Wednesday of this week.

There is the fullest confidence on the part of the paper trade and the printing industry that a very substantial amount of real accomplishment is possible and with a feeling of due modesty that Philadelphia may thus be in a position of leadership for sister organizations in other cities similarly circumstanced. This prospect of better times ahead is about the only development of the week which gave cheer. So far as improved business is concerned, the period was virtually as quiet as the preceding one; business generally was dull and very spotty with no real gain.

Paper and Cordage Men Meet

The meeting of the Philadelphia Paper and Cordage Association on Friday of last week was really enthusiastic. Business conditions as they exist in these times of overnight change afforded the topic of general discussion. President Hooper was authorized to appoint a committee which will draft definitely the object which the association hopes to accomplish for the benefit of prospective new members but the membership generally. Of course there is no desire, nor would it be possible, to favor any restrictive plans regulating the other fellow's business, but the association has found that by having both manufacturers and their distributors belong to the association, there is promoted a better relationship between the two.

Results have already demonstrated this fact.

It is proposed at the regular monthly meeting, to be held in the Ivory Room of the Adelphia Hotel, to give over the entire meeting to a symposium more fully to develop the association's objects. It is probable at this meeting that Leslie C. Bartlett, as chairman of the entertainment committee, will be in a position to make definite recommendations for a dinner-outing or some other form of social diversion. Harold N. Newall, American Manufacturing Company, Front and Shunk Streets, has been added to membership.

News of the Trade

The Philadelphia Paper and Bag Institute meeting was held at the Elks Clubhouse on Wednesday evening last and had out a representation of ninety percent of the full membership. Business conditions in these changeable times were discussed, the consensus of opinion being that improvement was developing certainly though slowly.

Edward Hemingway, former paper stock dealer, and now a world traveler, returned from a trip to England, where he remained since his departure several months ago, foregoing a contemplated continuation trip to South Africa.

Mr. Hemingway, an observant traveler, has some most interesting stories to tell of economic conditions of Europe, and particularly England. A commentary on economic conditions in England is given by his statement that on a recent Sunday, despite the industrial depression, more than twenty-seven thousand people had paid their 2/- admittance to the Zoo.

Board Men Present Plan for Promoting Employment and Industry Stabilization

William P. Jeffrey, chairman of the National Paperboard Association, Western Division, last week submitted to the secretary of President Roosevelt a letter outlining a plan for promoting employment and stabilization of the industry. This plan was approved by the Executive Committee of the Association, April 26, by the Western Group meeting April 27, and by the Eastern Group meeting May 1. The letter in full is presented herewith.

Proposal of National Paperboard Association

The members of the National Paperboard Association, comprising over 90 per cent in numbers and volume of paperboard manufacturers, have approved the following statement and have requested its submission to the President of the United States.

The paperboard industry is a large and important one, employing approximately 50,000 persons. During the year 1932, and so far this year, it has operated at about 50 per cent of capacity. (This statement is based upon complete and accurate statistics, which have been audited.)

Prices are demoralized to an extent which precludes profitable operation and this condition has forced economies which have reduced wages and the number employed in harmful degree.

The members of this industry favor a six-hour day in this emergency. They favor the payment of adequate wages. They favor the elimination of, and a curb upon, the unsound and the unfair in merchandising practices and prices, which bring chaos to business and a reduction in employment and wages.

Notwithstanding the above, the members of this industry oppose government regulations of the hours of labor, of wages and production. It is the opinion of the members of this industry that before the United States Government embarks upon the regulation of business, other and probably safer remedies should be attempted.

Before industry is condemned, and it is deprived of all freedom of action, it should be remembered that under laws now being proposed, industry will be required to do those things which, under existing laws, it has been refused the privilege to do voluntarily. The many should not be penalized for the sins of the few, over whom all control has been denied to industry.

The members of this industry believe that if business will be permitted to act voluntarily, hours of labor will be reduced, employment will be increased, adequate wages will be paid, and industry stabilization—all to the public good—can be secured.

We recognize that any industry stabilization plan, which has the power to effect the necessary cures, includes the power to abuse; that, therefore, for the protection of the public, governmental supervision is necessary. On the other hand, we believe that such governmental supervision will be better than direct regulation through statutory regulation of hours of labor, wages, production and other business details. It is our opinion that the government cannot embark upon such program of regulation without it developing new abuses, the curing of which will call for continued additional governmental control until a full license system will be in force and all liberty of the individual will be lost.

The members of this industry therefore respectfully request the enactment of a law that during the period of emergency (as the same may be declared by the President) the operations of the Sherman Anti-Trust Law shall be suspended with respect to any plan submitted to and approved by the President, acting through a bureau of representatives to be designated, which shall be responsible to the President, provided such plan shall have the approval of at least 75 per cent in numbers and volume of the particular industry; that in case any such plan is so approved, it shall be binding upon and enforcable against all members of the industry; that the approving body may withdraw its approval at any time if operations under the plan shall be deemed to produce results harmful to the public welfare; that any such plan shall, as a condition to approval, contain therein provisions, which are fair and reasonable, covering hours of labor, rates of pay and other protective features as may be necessary to safeguard the interest of the public.

As illustrative of the above, this industry, if legislation such as the above enacted, will submit a plan which will, among other things, include the following:

1. A Six-Hour Day

(Note—This would mean four 6-hour shifts on paper machines for 24 hours of continuous operation, in place of three 8-hour and two 12-hour shifts now prevailing. It is estimated that this will put 12,000 to 15,000 more men to work in this industry.)

2. Adequate Wages

We will agree that this wage for six hours shall not be less than the 1929 wage for eight hours, adjusted—plus or minus—to the cost of living in 1929 as compared with the cost of living at any time hereafter prevailing, all as may be necessary so that the wage shall be proportionate and the purchasing power equivalent to that prevailing in 1929.

This will increase the cost of production. It is assumed the government will take action as appropriate to protect industries in this country from competition from foreign countries.

3. Price Limitation

A limitation on prices as may be necessary to prevent unreasonable profits and unfairness to the public.

4. Stabilization

The plan will not include agreements as to prices or limitations upon production. Allocation of customers, protection of existing volume or trade position will not be included. The plan will, however, contain provisions which will operate as a curb upon demoralizing price cuts and other practices now recognized as damaging to industries and to public welfare.

Through recognition of, and adherence to, the principle that each member of the industry should control excess capacity, which is in proportion to the industry's excess capacity, individual operations of capacity in excess of the industry per cent will be subject to a progressive tax at an amount per ton to be hereafter determined. The amount of this tax will be so fixed as to operate as a deterrant to volume seeking through unsound price concessions, but will not be so large as to preclude full and free competition under normal, healthy merchandising policies and

of each will be the factors upon which the tax will be measured.

5. Administration of Tax Fund

This tax will be paid to trustees, and its collection will be enforceable by the trustees. These trustees shall be persons approved by the Government. Tentatively it is proposed that the industry shall appoint one, the Secretary of Labor shall appoint one, and the two so appointed shall choose the third. Broad descretion shall be given the trustees as to the use of any fund so created. One purpose would be to use the fund as an unemployment fund; another purpose—all in the discretion of the trustees—would be the payment of rental for paperboard mills and properties, this by way of relieving the pressure of excess capacity and aiding through the depression, companies which are facing operating difficulties. In case an operating mill should be so leased or carried by this fund, it is proposed that such taking over should be conditional upon the absorption by the industry of the labor of any property so shut down. This would permit of some control of capacity and the relieving of the pressure upon the industry of excess capacity, without at the same time giving the industry power to create capacity shortage. By such use, it is believed that the fund would operate to maintain employment and thus reduce the need of its use for unemployment.

It is appreciated that governmental supervision of operations under any plan is essential in order that its true effect and fairness in operation can be known. This industry will welcome such supervision.

Further details will be included as may be necessary and deemed proper for the benefit of capital invested, those dependent for their livelihood upon the industry, and the public.

The foregoing is not intended to cover details but to set forth the broad outline of the plan proposed.

Respectfully submitted,
NATIONAL PAPERBOARD ASSOCIATION
By William P. Jeffrey, Chairman
1 Wall street, New York City.

PAPER MAKERS VISIT SAVANNAH

(Continued from page 15)

fashioned fish-fry. At Townsend, they saw a giant saw mill which has been operating full time during the depression. At Pine Harbor they saw scores of workers trimming pine trees for naval stores purposes, a huge turpentine still going full blast and where, incidentally, they enjoyed an impromptu minstrel show by singing negro barrel makers. At Midway they were thrilled by the beauty of the ancient cemetery, church building and lore of the famous settlement that furnished two signers of the Declaration of Independence.

It was an exhausted party that returned to the De Soto Hotel, but each dust-covered face bore a smile of satisfaction and each member of the party, after a good bath and dinner began telling each other about what a revelation the trip was for them, and they expressed their genuine satisfaction over the visit.

Sightseeing in Savannah

Wednesday was devoted to sightseeing in Savannah, one of the most interesting cities in the South. Its great history has provided it with many landmarks. Guided by the hospitable and generous citizens of Savannah, the visitors were shown all points of interest and at noon were taken to the magnificent estate of Judge Solomon, where they enjoyed a delightful luncheon and mint juleps such as can only be prepared by a genuine Georgia Cracker. Following this affair all were taken to the steamer and amid enthusiastic and friendly farewells started down the picturesque Savannah River to the Gulf Stream and through continued sunshine back to New York.

Among Those Present

In addition to the large number of representatives of the Georgia Forestry Association who attended the meeting, the following representatives of the paper and allied industries were present:

W. C. Cram, Jr., Georgia Power Company, Atlanta; R. E. Case, International Nickel Company, New York; A. C. Dreshfield, Paper Makers Chemical Corporation, Kalamazoo, Mich.; J. Gilbert Mason, Jr., Edgar Brothers Company, Metuchen, N. J.; C. W. Boyce, American Paper and Pulp Association, New York; M. J. Riemersma, Hercules Powder Company, Wilmington, Del.; C. A. Grondona, Crown-Zellerbach Company, Carthage, N. Y.; W. J. Lawrence, Paper Makers Chemical Corporation, Kalamazoo, Mich.; E. N. Bechard, Eastwood-Nealley Corporation, Belleville, N. J.; R. S. Johnston, Pusey & Jones Corporation, Wilmington; Tom Walden, Paper and Paper Products, New York; C. C. Walden, same company; J. L. Williams, Edgar Bros. Company, New York; C. H. Herty, Georgia Department of Forestry; W. G. MacNaughton, same; M. H. Teaze, Hardy S. Ferguson & Co., New York; H. J. Skinner, Skinner & Sherman, Inc., Boston, Mass.; F. L. Simons, same company; F. G. Erskine, Cellulose Research Corporation, New York; John Campbell, International Paper Company, Glen Falls, N. Y.; A. B. Copping, same company; R. H. Stevens, Ridgecrest, N. C.; H. G. Walker, Western Electric Company, Kearny, N. J.; J. W. Andrews, same company; O. L. Berger, G. D. Jenssen Company, New York; F. T. E. Sisson, Racquette River Paper Company, Potsdam, N. Y.; D. H. Killeffer, American Chemical Society, New York; A. A. Coffin, Titanium Pigments Company, New York; E. O. Reed, Crane & Co., Dalton, Mass.; H. M. Stowell, same company; Nelson Reed, Dalton, Mass.; W. W. Newell, Nashville Industrial Corporation, Old Hickory, Tenn.; G. P. Genberg, Fraser Companies, Ltd., Edmundston, N. B., Canada; H. R. Murdock, Champion Fibre Company, Canton, N. C.; Allen Abrams, Marathon Paper Mills, Rothschild, Wis.; Chris Crusius, J. M. Voith Company, New York; C. F. Richter, Stebbins Engineering and Manufacturing Company, Watertown, N. Y.; R. L. Weldon, International Paper Company, New York; W. E. Wines, American Newspaper Publishers Association, New York; W. H. Brydges, Bedford Pulp and Paper Company, Big Island, Virginia; R. G. Macdonald, TAPPI, New York; L. M. Booth, Booth Chemical Company, Elizabeth, N. J.; Frederick Wierk, Johnson & Wierk, New York; G. D. Bearce, New Brunswick International Paper Company, Dalhousie, N. B., Canada; D. B. Kuhe, York Haven Paper Company, York Haven, Pa.; C. J. Musante, Diamond Match Company, Portland, Ore.; J. J. Healy, Jr., Merrimac Chemical Company, Boston; B. D. Millidge, Howard Smith PPaper Mill, Cornwall, Ont.; C. M. Connor, Glassine Paper Company, Conshohocken, Pa.; A. D. Merrill, Chemipulp Process Company, Watertown, N. Y.; Austin Cary, U. S. Forest Service, Washington, D. C.; J. A. Lee, Chemical and Metallurgical Engineering, New York; N. P. Wardwell, Carthage Machine Company, Carthage, N. Y.; Jack O'Brien, *Paper Mill*, Boston; J. H. Ross, Forest Products Laboratories, Montreal, P. Q.; H. J. Rowley, Anglo-Canadian Paper Company, Quebec, P. Q.; D. H. Jackson, Crowell Engineering Company, New York; Anthony Anable, Dorr Company, New York; C. W. Knowles, same company; F. A. Gaylord, Albany, N. Y. In addition to the above mentioned, many men were accompanied by their families.

New England TAPPI Chartered

The first official meting of the New England Section of the Technical Association of the Pulp and Paper Industry held at the Nonotuck Hotel, Holyoke, Mass., Friday evening, May 5, was attended by more than 150 members of TAPPI and their friends. The previous organization meeting had been attended by about 50.

Following an excellent dinner, Chairman Frederic C. Clark introduced Allen Abrams, President of TAPPI, who presented the chairman with the charter of the section and a gavel. In doing so Mr. Abrams pointed out that the recent developments in Georgia and those of the West Coast during the last few years are convincing arguments that the industry is changing, and an open mind will be one of the requisites of those who are to remain successfully in the industry.

Frederick A. Curtis, vice chairman of the Section responded to Mr. Abrams and accepted the Charter and gavel for the New England TAPPI Section.

Miss Helen U. Kiely, Secretary of the Section read the minutes of the last meeting.

R. G. Macdonald, Secretary of TAPPI, was called on to describe the trip to Savannah and the pulp and paper meeting held in that city. He also stated that the TAPPI Manual is nearly ready for distribution.

Sutermeister on Sizing Theories

Edwin Sutermeister, chief chemist of the S. D. Warren Company, Cumberland Mills, Maine, was the speaker of the evening and read a paper on "Old and New Theories of Sizing," a subject on which he is an outstanding authority.

In his paper Mr. Sutermeister first outlined some of the factors that influence sizing. It is known that cotton is harder to size than wood pulp. Highly purified sulphite sized with greater difficulty than ordinary grades while soda fiber sizes more easily than sulphite.

This difference may be due to variations in the structure of the fiber surfaces and to the distribution of the rosin on them. We do not know what properties of rosin influence its sizing value, nor how to test it to show its value.

The question of why alum is necessary has never been satisfactorily answered but it appears to be an established fact. In short, we have a large number of facts and data to deal with concerning sizing. What is needed is a coordinated plan of attack which will take up the various variable factors one at a time and to study them in relation to other factors. It would be desirable to carry out such work at the Institute of Paper Chemistry.

Interesting Discussions

Following the reading of the paper there was a long and interesting general discussion in which the following comments were made.

The dry indicator test is the one which will best measure penetration of moisture into paper.

For low amounts of rosin a two to one ratio of alum to rosin is desirable, but for higher rosin percentages the ratio of 1.5 to 1 is suitable.

Time is of importance in the sizing process but if sized stock stands too long it loses sizing property.

The film theory of sizing was attacked by one member who proposed a theory that sizing is due to surface tension. It has been calculated that if a film was formed it would be of molecular thickness.

Brittleness is probably due to pressure of oxycellulose.

The water white rosins were said to produce less efficient results than the lower grade rosins.

In solvent sizing about 15 per cent rosin is used and produces a film.

For sizing carbonate filled papers, wax size was recommended.

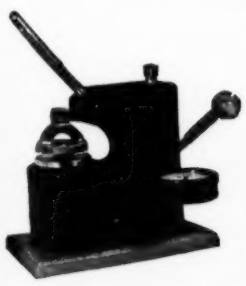
Among Those Present

Among those present were the following: J. R. Adams, Old Colony Envelope Company, Westfield, Mass.; F. W. Adams, Massachusetts Institute of Technology, Cambridge, Mass.; C. J. Backus, Collins Manufacturing Company, N. Wilbraham, Mass.; Frank Borlen, American Writing Paper Company, Holyoke, Mass.; G. L. Butters, Strathmore Paper Company, W. Springfield, Mass.; Bemis Wood, Strathmore Paper Company, Woronoco, Mass.; T. C. Bowen, American Writing Paper Company, Holyoke; M. J. Baker, Franklin Paper Company, Holyoke; T. J. Boyne, Smith Paper Company, Lee, Mass.; A. F. Bailey, Du Pont Company, Providence, R. I.; H. T. Barker, Bird & Sons, E. Walpole, Mass.; W. J. Burke, American Writing Paper Company, Holyoke; A. M. Brooks, Raffold Process Company, Andover, Mass.; F. K. Becker, Bird Machine Company, S. Walpole, Mass.; H. J. Billings, A. D. Little, Inc., Cambridge, Mass.; F. E. Bahrenburg, Strathmore Paper Company, W. Springfield; H. A. Brawn, Strathmore Paper Company, W. Springfield; M. E. Blew, same company; J. A. Constance, Millers Falls Paper Company, Millers Falls, Mass.; F. A. Curtis, American Writing Paper Company; Alfred Cosby, W. J. Cassidy, George Carroll, same company; Arthur Cardinal, Falulah Paper Company, Fitchburg, Mass.; L. M. Crouse, Staley Sales Corporation, Springfield, Mass.; F. C. Clark, Skinner & Sherman, Inc., Boston; R. C. Charron, U. S. Envelope Company, Worcester, Mass.; G. S. Canall, American Writing Paper Company; R. F. Driscoll, Smith Paper Company, Lee, Mass.; C. P. Dyer, Merrimac Chemical Company, Boston; W. L. Foote, B. F. Perkins, Holyoke; R. C. Griffin, A. D. Little, Inc., Cambridge, Mass.; A. B. Green, Needham, Mass.; Charles Gurham, Smith Paper Company, Lee, Mass.; James Geraghty, American Writing Paper Company; A. N. Gair, Smith Paper Company; P. Gooding, Strathmore Paper Company, Woronoco, Mass.; F. H. Glanville, Crocker-McElwain Company, Holyoke; W. J. Hendrich, Collins Manufacturing Company, N. Wilbraham, Mass.; S. D. Hellberg, American Writing Paper Company; W. H. Harding, American Cyanamid Corporation, Boston; Matthew Horgan, American Writing Paper Company; H. W. Johnston, Strathmore Paper Company, W. Springfield; W. O. Johnson, Strathmore Paper Company, Woronoco; Andrew Jackson, American Writing Paper Company; H. M. Keating, Smith Paper Company, Lee; R. E. Kilty, American Writing Paper Company; C. O. Kingsbury, Solvay Sales Company, Boston; Helen U. Kiely, American Writing Paper Company; G. H. Knox, Crocker-McElwain Company; H. S. Kimball, Waban, Mass.; R. H. Kimball, G. O. Jenkins Company, Bridgewater, Mass.; L. E. Kelley, American Writing Paper Company, C. H. Kent, American Delthirna Company, New York; R. W. Kumler, Bennett, Inc., Wilmington, Del.; J. P. Kennedy, American Writing Paper Company; Fred Lovenburg, Mathieson Alkali Works, Providence, R. I.; William Lamony, American Writing Paper Company; R. G. Loomis, Case Bros., Inc., Manchester, Conn.; H. S. Leonard, Merrimac Chemical Company, Boston; R. H. Love, Deerfield Glassine Company, Monroe Bridge, Mass.; John McEwan, American Tis-

sue Mills, S. Hadley, Mass.; Jessie E. Minor, Springfield, Mass.; C. A. Minor, Springfield; H. E. Mellen, Deerfield Glassine Company; P. H. Mudgett, Bird & Son, E. Walpole, Mass.; R. W. McKinley, A. D. Little, Inc., Cambridge; W. A. Nivling, Huron Milling Company, Boston; H. A. Otto, American Tissue Mills; H. L. O'Neil, Falulah Paper Company, Fitchburg; F. H. Osborne, C. H. Dexter & Sons, Windsor Locks, Connecticut; G. E. Pforsich, Keith Paper Company, Turners Falls, Massachusetts; R. W. Pattison, American Writing Paper Company; E. H. Penniman, Strathmore Paper Company, W. Springfield, Mass.; C. J. Prescott, Jr., Bennett, Inc., Boston; R. A. Packard, Smith Paper Company, Lee; H. W. Richter, G. O. Jenkins Company, Bridgewater, Mass.; E. A. Richardson, Smith Paper Company, Lee; P. W. Ayers, Smith Paper Company, Lee; J. R. Roberts, Du Pont Company, Wilmington, Del.; W. P. Richardson, A. D. Little, Inc., Cambridge, Mass.; A. L. Reese, Jr., Whiting Paper Company, Holyoke; H. R. Rafton, Raffold Process Company, Andover; E. Sutermeister, S. D. Warren, Cumberland Mills, Maine; Claude Smith, American Writing Paper Company; L. N. Smith, American Tissue Mills, Holyoke; K. A. Sheridan, Strathmore Paper Company, Woronoco; R. D. Smith, Keith Paper Company, Turners Falls; L. W. Shattuck, Strathmore Paper Company, Woronoco; R. W. Smith, Bird Machine Company, S. Walpole; J. C. Sanburn, Strathmore Paper Company, W. Springfield; A. Sharkey, Crane & Company, Dalton, Mass.; A. E. Southard, American Writing Paper Company; W. L. Savell, Mathieson Alkali Works, New York; Leonard Taylor, Holyoke; R. M. True, Crocker-McElwain Company, Holyoke; L. A. Thompson, Paper Makers Chemical Corporation, Holyoke; B. L. Tovo, Smith Paper Company, Lee; E. C. Tucker, Crocker-McElwain Company, Holyoke; L. B. Tucker, Crane & Co.; J. F. Suderdahnen, Bristol Company, Springfield; J. Van Oonsem, A. D. Little, Inc., Cambridge; G. L. Willey, Collins Manufacturing Company, N. Wilbraham; F. H. Willemain, American Writing Paper Company; Frank Williams, Crane & Co., Dalton, Mass.; J. V. Wilson, Merrimac Chemical Company, Everett, Mass.; B. D. Warren, Bird Machine Company, S. Walpole; E. Weber, National Aniline and Chemical Company, Boston; F. J. Wright, same company; L. M. Yoerg, American Writing Paper Company, and C. J. Yarber, Chemical Paper Manufacturing Company, Holyoke.

New Bursting Strength Tester

A new bursting strength paper tester has been designed by the Amthor Testing Instrument Company, Inc., Brooklyn, and is their type 280 illustrated. Construction is on the standard hydraulic principle. Operation is controlled by means of a hand lever. The paper is clamped as usual. Then one downward movement of the hand lever forces a fluid to exert a uniform pressure against a rubber diaphragm which lies flat against the surface of the paper. This pressure, via the rubber diaphragm is directly distributed evenly over the portion of the paper surface under test.



The exact strength at which the paper bursts, or the Bursting Strength, remains fixed on the gauge in "pounds per square inch." This gauge is hand calibrated, Bourdon type, and it is graduated either 0-40, 0-80, or 0-160 pounds.

New York Trade Jottings

Nashua Gummed and Coated Paper Company has leased a large suite of offices at 53 Park Place, New York.

* * *

Sill Paper Company announces the removal of its offices to 51 Madison Avenue, New York. Telephones: Ashland 4-2472-3.

* * *

Sol Ash, Inc., paper mill supply dealers, have moved their offices to the McGraw Building, 330 West 42nd St.

* * *

The Eastern Division of the Salesmen's Association of the Paper Industry will hold a beef steak dinner at the New York Athletic Club on Friday evening, May 12. The brew master has promised to knock the bung out of a barrel of choice beer.

* * *

Robert Gair Company, Inc., of 155 East 44th street, New York, announces the resignation of E. K. Mansfield, effective June 1. Mr. Mansfield's resignation was due to the increasing demands of his other interests and was regretfully accepted by the company.

* * *

R. S. Kellogg, secretary of the News Print Service Bureau, with offices at 342 Madison Avenue, New York, addressed the New York State College of Forestry at Syracuse, N. Y., yesterday. He is speaking before the Department of Forestry at Cornell University, Ithaca, N. Y., today, Thursday.

* * *

The new office building of the Worthington Pump and Machinery Corporation, situated adjacent to the corporation's plant at Harrison, New Jersey, was opened May 1. The general and executive offices, formerly situated at 2 Park Avenue, New York, have been moved to the new location for better coordination with manufacturing and sales operations. The local sales office will be continued at 2 Park Avenue.

* * *

Charles W. Boyce, executive secretary of the American Paper and Pulp Association, described "Recent Developments in the Paper Industry" at the regular weekly luncheon and meeting of the Eastern Division of the Salesmen's Association of the Paper Industry, held at the Hotel Roosevelt, New York, on Monday last. His interesting and instructive address was thoroughly enjoyed.

Beaters Modernized

LOCKLAND, Ohio, May 6, 1933.—In order to obtain increased capacity and generally improved operations, the Gardner-Richardson Company has had two of its finishing beaters running on "liner" in the Richardson mill, modernized by the Dilts Machine Works, Inc., of Fulton, N. Y. This work has just been completed and the beaters put into operation. The capacity has been increased to 2500 pounds each and the efficiency greatly increased. The work is excellently done and the character and appearance of the beaters greatly improved.

At the Lancaster, Ohio mill of the United States Gypsum Company, three finishing beaters have all been modernized and put into operation this past week. These beaters operate on Swedish Kraft making the bag papers for gypsum bags. The beater work has been done by the Dilts Machine Works, Inc., of Fulton, N. Y., under the supervision of P. F. Theobold, local superintendent and manager of the mill. It is reported that all of the United States Gypsum mills are busy and operating on a satisfactory time basis.

CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

St. Louis, Mo.—The Great Western Paper Box Company, 1011 North 14th street, manufacturer of folding and other paper boxes and containers, has concluded negotiations for purchase of industrial property at Ninth street and St. Louis avenue, heretofore owned and occupied by the Benderscheld Manufacturing Company, improved with plant building. Purchasing company will occupy in future for expansion.

Brooklyn, N. Y.—The Luna Paper Cup Manufacturing Company, recently organized by Barnett Cohen, 327 Stone street, and Samuel Leider, 905 Linden boulevard, both Brooklyn, is said to be planning early operation of local plant for manufacture of a line of paper cups, plates and kindred products.

Mount Holly Springs, Pa.—In connection with recent acquisition of the local mill of the Mount Holly Glen Paper Company by Eaton, Dikeman Company, Lee, Mass., the purchasing company is beginning an improvement and modernization program at the plant, which has been idle for about ten years past. New equipment will be installed. It is expected to have the mill ready for operation at an early date. The acquiring company, it is understood, will concentrate production largely at Mount Holly Springs in the future, replacing operations at mill at Lee, destroyed by fire last year.

Sylva, N. C.—The Sylva Paperboard Company has arranged for supply of electric power for service at its mill from the Nantahala Power and Light Company, Bryson City, N. C. The power company is planning immediate construction of a 66,000-volt transmission line from power substation at Nantahala to mill site, about 30 miles distant. The Sylva company is advancing production schedule at its mill, following receipt of several large orders, and will soon be on a 100 per cent operating basis.

Elizabeth, N. J.—The Wilson-Jones Company, 3300 Franklin boulevard, Chicago, Ill., manufacturer of loose-leaf paper stocks, paper and board binders, etc., has closed bids on general contract for erection of new paper converting plant on site recently purchased at Bayway and Lidgerwood avenues, Elizabeth. New unit will be one-story, 150 x 450 feet, with power house, 40 x 40 feet, reported to cost close to $85,000, with equipment. It is expected to make award for superstructure at early date. Leo F. Caproni, 742 Elm street, New Haven, Conn., is architect and engineer.

Newark, N. J.—The Price Brothers Label Company, 368 Coit street, Irvington, manufacturer of paper labels and allied paper products, is running on a maximum capacity schedule, with day and night working forces. For the past few weeks, the plant has been open for operations on Saturdays and Sundays for overtime work. It is expected to continue on present basis for an indefinite period.

Green Bay, Wis.—The Northern Paper Mills, Green Bay, are reported considering establishment of new branch plant in the vicinity of Toronto, Ont., to cost over $150,000, with equipment. It is understood that site has been selected.

Portland, Ore.—The Grisby Brothers Paper Box Manufacturing Company, 201 Clackamus street, manufacturer of corrugated paper boxes and containers, is planning early construction of new plant unit, to be one-story, used for general production, with portion for storage and distributing service. It will be 50 x 100 feet, reported to cost over $35,000, with equipment.

Hopewell, Va.—The Hummel-Ross Fibre Corporation is increasing operations at local mill, with enlarged working quota. Over one-half of normal working force is now engaged at the plant.

Cincinnati, Ohio—The Container Corporation of America, Inc., 5500 Eastern avenue, manufacturer of paperboard and paper boxes, containers, etc., is considering extensions and improvements in power house at local plant, with installation of two new boilers, stokers and auxiliary equipment. No estimate of cost has been announced. Company headquarters are at 111 West Washington street, Chicago, Ill. The Owens-Illinois Glass Company, 965 Wall street, has acquired a large block of preferred stock of the Container Corporation, and will be active in management in the future.

Roanoke, Va.—The Viscose Corporation of Virginia, manufacturer of cellulose rayon products, is advancing production schedule, placing about 4,000 persons in different departments on a full-time basis, replacing part-time operations. This is the first that the mill has been running full since August 1931. It is expected to hold to present basis for some weeks to come.

Hoboken, N. J.—The Pioneer Bag and Paper Co., has been organized with capital of 2,500 shares of stock, to take over and expand the Pioneer Paper Corporation, with headquarters at 227 Grand street, Charles Korn, 68 Hudson Street, Hoboken, represents the new company.

Brooklyn, N. Y.—The Gurney Security Paper Company, 66 Front street, has leased a floor in the industrial building at 70 Washington street, and will occupy for new plant and headquarters. It is expected to take immediate possession.

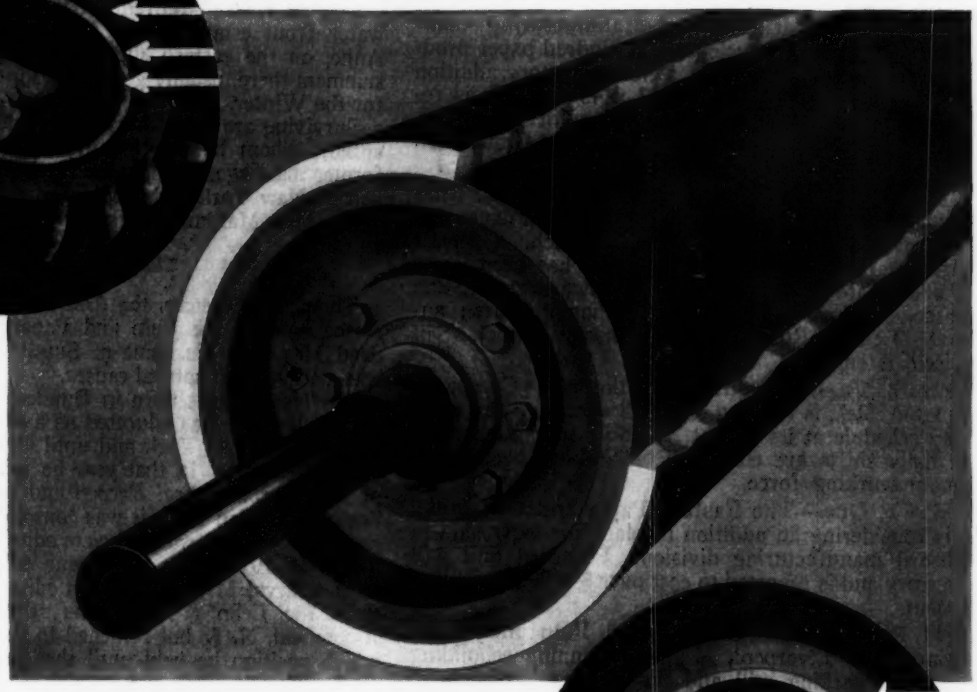
Drummondville, Que.—Canadian Celanese, Ltd., manufacturer of cellulose rayon products, is operating local mills on a capacity schedule with full working force in all departments. The company is said to have orders on hand to insure continuance of this schedule for an indefinite period

Brooklyn, N. Y.—The Osborn Paper Company, Inc., 222 Osborn street, is considering alterations and improvements in plant, estimated to cost over $25,000. It is proposed to place work under way at early date.

WOULD YOU BE SATISFIED with 75¢ on the DOLLAR?

Before
VULCALOCK

You couldn't buy paper mill rolls with soft elastic rubber clear to the core. A hard rubber base between soft rubber cushion and metal core had to be there. But it was dead rubber and decreased the thickness of cushion. Which meant shorter life and increased cost.



After
VULCALOCK

Through the bonding of soft elastic rubber directly and inseparably with metal core, Vulcalock increased the thickness of cushion and eliminated the hard rubber base which had no cushioning properties. This means longer life to the roll and decreased cost.

● You wouldn't accept Paper Mill Rolls, even from Goodrich, if they were only three-quarters covered! *Nobody* would if the other quarter were stripped out of the roll surface. But *anybody* who accepts the old-fashioned hard rubber base roll, nowadays, is doing just that.

Suppose you wanted a roll with a cover one inch thick, but one-fourth of it was hard rubber base, which represents so much dead rubber cushion-waste. That means you would get a seventy-five cent value for every dollar that you invested.

Canny buyers in today's market are not satisfied with 75c on the dollar; they expect a full dollar's worth of value in the product. Just as you do! *Why* Vulcalock Paper Mill Rolls give you the most for your money should interest you. Write for the facts... The B. F. Goodrich Rubber Co., Mechanical Rubber Goods Division, Akron, O.

ROLL COVERINGS—HOSE—BELTING—MISCELLANEOUS RUBBER PRODUCTS

Goodrich

ALL *product problems* IN RUBBER

Vulcalock *Paper Mill Rolls*

Lykens, Pa.—Ralph J. Snyder, Lykens, has concluded arrangements for purchase of the local two-story paper box manufacturing plant on North street, heretofore owned by A. E. Werner, and will take possession at once. New owner is said to be arranging for resumption of operations for same line of production.

Norristown, Pa.—The Continental Diamond Fibre Corporation, Newark, Del., has increased operations at its Norristown mill. The plant is now running on a basis of about 35 per cent, an advance over this time a year ago, with larger working quota.

Hastings, Minn.—The Smead Manufacturing Company, manufacturer of envelopes and kindred paper products, has begun construction of a new two-story addition to paper converting plant, about 42 x 45 feet. It is reported to cost approximately $20,000, with equipment. Erection contract recently was awarded to the Graus Construction Company, Hastings.

Antioch, Cal.—The Fibreboard Products, Inc., Russ Building, San Francisco, Cal., will carry out an expansion and improvement program at mill at Antioch. Contract for structural steel for building framing has been let to the Golden Gate Iron Works, 1541 Howard street, San Francisco. Estimated cost of work has not been announced. Leland Rosener, 233 Sansome street, San Francisco, is engineer.

Ampthill, Va.—The duPont Cellophane Company, Wilmington, Del., is running on a full time, five-day week capacity schedule at its mill at Ampthill, near Richmond. Three daily shifts are employed on 24-hour basis, with maximum working force.

St. Basile, Que.—The Eastern Paper and Felt Mills, Ltd., is considering an addition to plant for expansion in paperboard manufacturing division. Proposed unit will be one-story and is reported to cost over $40,000, including equipment.

Rapid Falls, N. S.—The Macleod Pulp and Paper Company, Ltd., Liverpool, N S., is planning rebuilding of one-story barking mill and pulp storage building at Rapid Falls, used for pulp mills at Milton, recently damaged by fire. Loss reported close to $16,00, with equipment.

New Companies, Etc.

New York, N. Y.—Irving Fishman, Inc., Bronx, has been organized by Irving Fishman, 2187 Cruger avenue, Bronx, and associates, with capital of $20,000, to manufacture and deal in paper products of various kinds.

New York, N. Y.—The Pleasant Paper Stock Company, Inc., has been chartered by Irvin L. Freeman, 1388 Sterling place, and Julius Fell, 917 Glenmore avenue, both Brooklyn, N. Y., with capital of 200 shares of stock, no par value, to deal in paper goods.

New York, N. Y.—The Major Paper Corporation, 259 West Tenth street, has filed notice of change of company name to the Major-Hurlburt Paper Company, Inc.

Waukegan, Ill.—The Lake County Rag & Paper Company, 210 Washington street, has been incorporated with a capital of $5,000, to deal in waste paper stocks. The incorporators are James Barr and S. M. Kaft.

New York, N. Y.—The Comet Envelope and Printing Company has been incorporated with capital of $10,000, to operate a paper converting plant for manufacture of envelopes, etc. Company is represented by Jacob Sirota, 1133 Broadway, New York, an attorney.

New York, N. Y.—The Metropolitan Paper Products Corporation has arranged for change of company name to the International Paper Products Corporation.

Obituary

Col. W. E. Haskell

Colonel William E. Haskell, formerly first vice-president of the International Paper Company, founder of *The Crimson* at Harvard University and former newspaper executive in New York, Boston and Minneapolis, died at Salisbury, Maryland, on Tuesday, May 2. He was 72 years old.

Colonel Haskell retired six years ago and purchased a water front estate on the Manokin River near Princess Anne, on the eastern shore of Maryland. He spent his summers there, usually going to Florida or Southern Pines for the Winter.

Surviving are his widow, Mrs. Helen Eggleston Haskell, author, whom he married in 1903; three children by a former marriage, William E. Haskell, Jr., and Cedia Haskell of New York and Dudley E. Haskell of Paris, and a sister, Miss Margaret Haskell, of Auburndale, Mass.

Thomas J. Keenan

Thomas J. Keenan, the first secretary of the Technical Association of the Pulp and Paper Industry, was found dead May 1 in his home at South Orange, N. J. Death was attributed to natural causes.

Mr. Keenan was born in Dundee, Scotland, August 29, 1866, where he was educated as a pharmaceutical chemist. He came to New York and until 1892 was employed as a hospital chemist. In that year he joined the editorial staff of the *Pharmaceutical Record* and was editor of the publication when, in 1893, it was consolidated with the *American Druggist*. He was associate editor of the latter publication until 1911 when he became editor of *Paper*. For a brief interval Mr. Keenan was editor of scientific publications for Lehn & Fink, Inc., drug manufacturers, of Bloomfield, N. J., but returned to the editorship of *Paper*, which position he held until that publication was sold in 1925 to the PAPER TRADE JOURNAL. After this Mr. Keenan became associate editor of *Paper Industry* and remained in that position until late in 1932. His wife died about that time and Mr. Keenan went to Scotland. He returned a few months ago and has since been devoting himself to free lance journalistic work and the writing of technical articles.

Mr. Keenan was a member of the Society of Chemical Industries, a member of the American Chemical Society and was a Fellow of the Chemical Society of London. He joined the Technical Section of the American Pulp and Paper Association and became the first secretary of the Technical Association of the Pulp and Paper Association when the organization was formed in 1915. He was intensely interested in the work of the association from the very beginning and through his untiring efforts did much to establish the association on a firm foundation in its early days. Because of his position, he made many friends among the technical men of the industry who will regret to learn of his death.

Goes With Package Paper Co.

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., May 9, 1933—Herman L. Joachim, formerly of the Federal Paper Board Company, of Bogota, N. J., has been appointed assistant to the president of the Package Paper Company, of this city, Arthur Havemeyer. Mr. Joachim was first employed in the industry by the Bogalusa Paper Company, of Bogalusa, La., and later went to the Central Paper Company of Muskegon, Mich., where he was engaged in chemical and technical work.

ANNOUNCING

The appointment of the J. O. Ross Engineering Corporation as exclusive United States representative in charge of sales for the internationally known DELTHIRNA Sizing System.

Combining the proven construction and operating advantages of the DELTHIRNA System with the specialized facilities of the Ross organization, now presents service for the paper industry that is unique, complete and comprehensive. DELTHIRNA—the outstanding sizing plant equipment introduced by Ross.

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PAPER TRADE JOURNAL
ESTABLISHED 1872

Published at 34 North Crystal St., East Stroudsburg, Pa. Executive and Editorial Offices, 15 West 47th St., New York, N. Y.

Henry J. Berger
Editor

Ronald G. Macdonald
Editor Technical Section

Herbert J. Laughton
Associate Editor

Thomas J. Burke, C. A.
Editor Cost Section

Lynne M. Lamm,
Washington Correspondent

Price, Per Copy, 10 Cents — United States, Per Annum, $4.00
Canada, including tax, $7.50; Foreign Countries in Postal Union, $6.00

Member Audit Bureau of Circulations

Vol. XCVI New York, May 11, 1933 No. 19

This publication is now and always has been printed on paper made in the U. S. A.

INTRA-INDUSTRY COOPERATION

There have been various estimates as to the number of unemployed. Without any attempt at complete accuracy, ten million might be considered a fair estimate. It is probably fair, also, to assume that the individuals in the country who are at work or need work number forty million. Based on these figures, unemployment amounts to 25 per cent. By reducing the present hours of labor 25 per cent, it would seem, therefore, that unemployment could easily be wiped out. This is good arithmetic. It is not good economics. There is much more to be taken into consideration than the simple mathematics of the proposition and this is why President Roosevelt apparently has not shown any great sympathy with the thirty-hour week bill which has already passed the Senate.

Realizing, however, the great importance of the problem, the President has signified his willingness to allow industry itself, with the sympathetic coperation of the government, to work out some solution with the thought of furnishing, as far as possible, a job at a reasonable wage to every man and woman who is able and willing to work. This and other suggestions of the administration leads the writer of a bulletin just issued by Ernst & Ernst, accountants and auditors, to say that, thus, in a sense, government is now proposing to do for business only what business for years has wanted to do for itself and it was unsuccessful in doing for two reasons:

(1) In every line, there is an element of cut-throat competitors who do not envisage the trade or industry as a whole, and who persist in following a short-sighted policy of bitter competition in the hope, perhaps false in the end, that they can survive while others fail.

(2) The other reason lies in the anti-trust laws, whose twilight zones and ambiguities created within many industries a fear to do what seemed economically desirable. Consideration is now being given to modifying the anti-trust laws in such a way as not to abolish competition, but to define more clearly the realms within which competition is to be maintained, and to define other realms in which constructive cooperation is to be positively encouraged.

Trade practice conferences contain the key to the government's policy of the future. For nearly 12 years they have worked well within certain limits to eliminate unfair trade practices. They have been supervised and administered under the authority of the Federal Trade Commission, but the idea is now being extended. The farm bill provides for trade practice conferences of the agricultural trades under authority of the Secretary of Agriculture, and it is now proposed to give other government departments a hand in supervision of trade agreements in other fields.

Technically a trade practice conference consists of an agreement among members of a trade or industry to do certain things intended to prevent unfair competition, subject to approval by the government. These things in the past have related mainly to matters of distribution and sales methods. Restrictions of the anti-trust laws prevented trade agreements designed to curb unnecessary losses through certain forms of price cutting and the penalizing of recalcitrant members.

The new ideas now developing with regard to trade practice conferences, intended to extend their usefulness, are these:

(1) To give to the procedure a definite legal status which heretofore it has lacked.

(2) To provide that the minority or dissenting members of a trade or industry shall be bound by the rules adopted by the majority, as measured by both numbers and volume of business.

(3) To extend the subject matter of rules to cover regulation of production, wages, hours of labor, and other matters which are related to ruinous price-cutting competition.

With regard to (1), it is fairly obvious that this procedure deserves a statutory authority. This is provided in the Nye bill, which has been pending for two years without conclusive action, and which is now being revised to cover new phases.

With regard to (2), if business groups are to govern themselves, it seems essential that the control shall be by the majority, and that some way must be found for compelling the dissenting minorities to fall in line. The results may not be perfect, but it would seem that in the long run the judgment of majorities in any line might be trusted. Furthermore, it is obvious that government itself cannot be expected to supply the wisdom or intelligence to decide the multitudinous nice problems which arise in every line of modern business, or even to furnish the initiative.

With regard to (3), an argument for including production control, minimum wages, maximum hours of labor and other working rules and conditions, to prevent unreasonable competition in the subject matter of trade practice conference agreements, is as follows: The harmful effects of unwarranted price cutting are considered against the public interest as contributing to lower wage scales, reduced pur-

chasing power, increased unemployment, and increased cost of relief work.

The extension and development of a new and more effective form of trade practice conferences to permit industries to work out their own problems under government supervision should be a constructive move and probably would show prompt results. The machinery already exists in the form of trade associations through which a controlled business program can be made effective in many business lines.

If these trade agreements are to be permitted, it is obvious that some public agency must supervise, lest the public interest be jeopardized by the selfish intra-industry interests, which might include both the corporations and the employes of the industry. Hence, it is obvious that a higher degree of government supervision and regulation of private industry must be expected in the future.

Easy credit alone has been tried as a depression remedy and has failed, because of lack of the element of turnover or velocity. Deflation has been tried, although incompletely, as a way of restoring equilibrium. A new inflation and expansion of the volume of money or credit is now proposed. If the maximum benefits of controlled inflation are to be achieved with a minimum of dangers, it is absolutely essential that inflation be accompanied by new rules and new concepts for the conduct of business. Each trade and each industry must be permitted and encouraged to organize itself on a rationalized or planned basis, in order to stop the destructive losses, to make profits possible, to lure money back into buiness activity, to recreate employment, and to guard against the extravagances which might flow from inflation if the old order of highly individualized competition were to be maintained. Only by this means can the accumulated intelligence and experience of the business world be harnessed and applied in the public interest. Most depression remedies tried to date have been negative. Cooperation within trades and industries is a positive remedy.

Bids and Awards for Government Paper

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., May 10, 1933—Tamm & Co. has been awarded the contract for furnishing the Government Printing Office with 1,000 sheets of 22 x 28" M.F. marble book paper at $55, bids for which were received on April 24.

The Mathers-Lamm Paper Company will furnish 850 sheets of 20 x 25 green gummed paper at $11.65, bids for which were received on April 19.

The Post Office Department will receive bids on May 22 for 72,000 pounds (16,000 reams) of 8 x 10½ white flat No. 40 chemical wood mimeograph paper. Also for 55,000 pounds (10,000 reams) same and for 8 x 13 and for 6,500 pounds (1,000 reams) same, 9 x 13½.

To Start Mountain Mill Soon

[FROM OUR REGULAR CORRESPONDENT]

LEE, Mass., May 9, 1933—Dr. James E. Campbell, president of the Westfield River Paper Company, announced the past week that work would be started at once in putting the Mountain Mill paper plant ready for operation. It is the plan to manufacture glassine papers of high quality and transparency.

A Plea for Paper Containers

The General Health Bureau for Public Education in Disease Prevention, Graybar Building, New York City, has just issued the following plea for paper containers:

"With the return of beer, deplorable sanitary conditions already exist in the dispensing of this beverage. In some places glasses are not properly washed or sterilized.

"Because of existing laws governing the use of common drinking cups in the spread of disease, many public health authorities are attempting to curb this menace to health through urging a closer observance of the law, the installation of adequate sterilizing equipment or advocating the use of individual containers, drinking cups and mugs and are calling upon all public spirited organizations and civic bodies to cooperate in these efforts to improve unsanitary conditions.

"Many public recreation places, such as ball parks, beaches, out-door amusement parks and swimming pools have banned the use of bottles and glasses, first, from the standpoint of health and sanitation and as a preventative in the communication of disease and second, because of the dangers of broken glass and bottles carelessly left around.

"Cooperating with this movement, the producers of paper cups and containers have developed attractive and practical cups, mugs and steins for the dispensing of beer and similar beverages in public places of this character.

"No longer need bottles be thrown at the umpire who renders a decision with which some excited individual does not agree. No longer need our beaches and public places of like character be strewn with glass and debris which is a menace to children and grown ups alike.

"Aside from these quite human considerations, the adoption and observance of proper restrictions promotes throughout an entire community a higher regard for sanitation and hygiene as a prevention in the spreading of communicable disease."

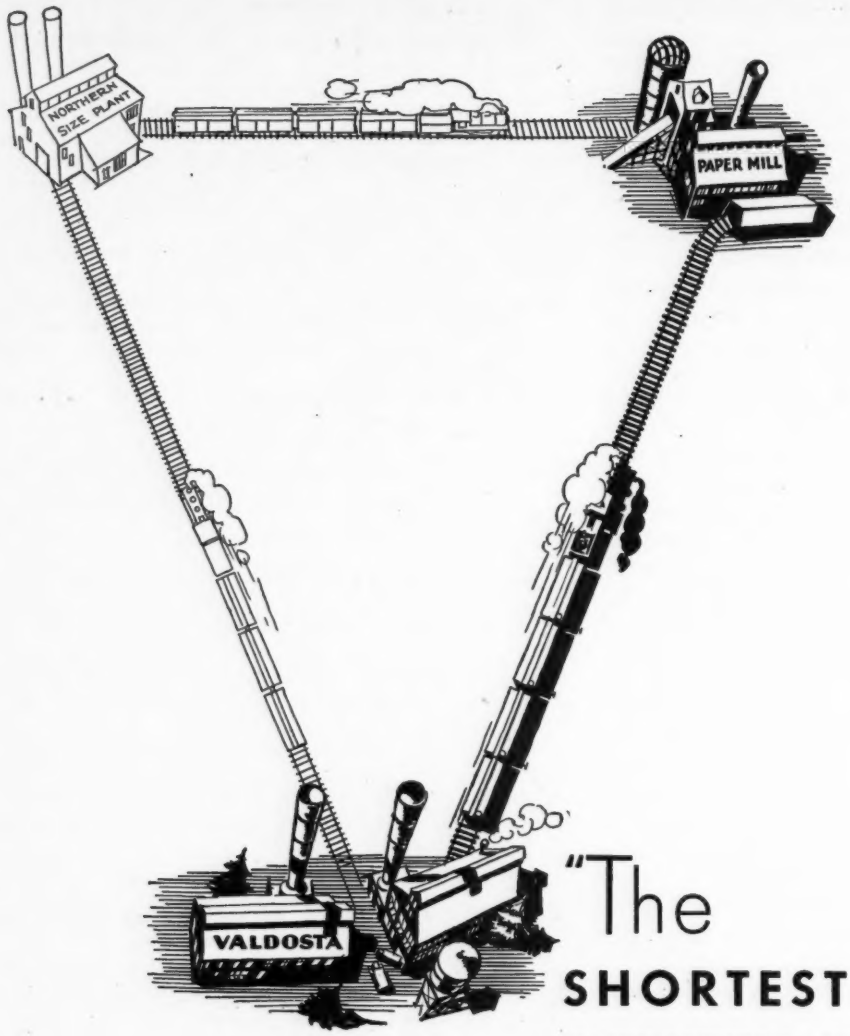
A. M. Perkins Goes With Bagley & Sewall

[FROM OUR REGULAR CORRESPONDENT]

WATERTOWN, N. Y., May 8, 1933—Announcement is made of the appointment of Allan M. Perkins, of Greenwich, Conn., to an official position with the Bagley & Sewall Co. He will serve as assistant to the president. It is said that he has been identified with prominent manufacturing concerns for many years and that his valuable experience makes him well qualified for his new duties. He is expected to take over his duties early in May but will probably not move his family here until some time later. The local company has been actively engaged for several months in the development of a number of important new features pertaining to paper mill equipment and contemplates a very active presentation of these to the trade. No other changes in the executive staff are contemplated.

Seaman Paper Co. Owns Seapak

In the issue of the PAPER TRADE JOURNAL of April 6, 1933, reference was made to "seapak," an interesting new insulating paper which is being manufactured by the Bryant Paper Company, Kalamazoo, Mich. In order to correct erroneous impressions that have been apparently created by this article, it should be stated that the Seaman Paper Company, with general offices at 410 North Michigan avenue, Chicago, is the sole owner of "Seapak" and that it is a patented product. The manufacture of this product, however, is with the Bryant Paper Company, with which the Seaman Paper Company is cooperating very closely.



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535 Fifth Avenue, New York

Section of the
Technical Association of the Pulp and Paper Industry
Edited by Ronald G. Macdonald, Secretary

Pulp and Paper Industry Literature Review

Abstracts of Articles and Patents Compiled by the Abstracts and Bibliography Committee of the Technical Association of the Pulp and Paper Industry, A. Papineau-Couture, John F. Ohlson, C. E. Peterson and Clarence J. West, Chairman

The National Research Council, 21st and B Street, Washington, D. C., through Dr. Clarence J. West, extends the courtesy of its photostat service to members of the Technical Association of the Pulp and Paper Industry. Owing to a limitation of personnel and time, this service cannot be extended to non-members.

The charge for the photostat service is: 9 x 11 inches—18 cents per page, 18 x 11 inches—35 cents per page, 22 x 18 inches—70 cents per page, minimum charge, 50 cents.

Payment should be made upon receipt of invoice.

Copies of United States Patents can be obtained from the United States Patent Office, Washington, D. C., for 10 cents each. Send currency, not stamps.

Machinery

Imprinting Device for Paper. George S. Witham Jr. U. S. pat. 1,872,207 (Aug. 16, 1932).—In a paper machine, a cold drier is provided intermediate the first and last heated driers and forms a platen for an imprint device.—A.P.-C.

Suction Box Dresser. Frank M. Williams. U. S. pat. 1,869,789 (Aug. 2, 1932).—The suction box is mounted on a pair of trucks having cradles to receive the box and provided with means for adjusting the height and inclination of the suction box. A cutter is mounted above the path of movement of the trucks so that it operates on the top of the suction box cover as the trucks are moved back and forth.—A.P.-C.

Fourdrinier Paper Machine. William H. Cannard. U. S. pat. 1,873,111 (Aug. 23, 1932).—The stock is delivered on to the wire from a cylindrical container located above the wire near the breast roll, and extending transversely across the machine. The bottom of the container is provided with a slot extending its full length. Means are provided for regulating the length and width of the slot and the height of the container, so as to regulate the width of the sheet formed and the amount of stock delivered to the wire. A suction box is provided under the wire directly under the slot through which the stock is delivered to the wire.—A.P.-C.

Rotary Cutters for Shredders. K. C. R. Dienes. Brit. pat. 358,720 (Oct. 3, 1930).—A rotary cutter for use on soft materials such as leather, paper, etc., is made from a disk of sheet metal, the edge of which is corrugated by pressing curved channel-shaped recesses into the plate from alternate sides. The curved channels commence at a distance from the center hole, leaving a flat surface for clamping the disk of a mandrel, the channels becoming deeper towards the edge of the disk, which is ground to sharpen the cutter. A number of disks may be clamped together on a mandrel, rings of suitable shape being used to space the disks apart. The edges of the individual cutters may be ground at an acute angle instead of flat.—A.P.-C.

Felt Conditioning. World's Paper Trade Rev. 97:1864-1870 (June 10, 1932).—A brief discussion of the merits of felt conditioners.—A.P.-C.

Sheet-Forming Apparatus. Harry A. Emery assignor to the Barrett Co. U. S. pat. 1,869,677 (Aug. 2, 1932).—An endless wire or felt passes around the greater portion of the circumference of a rotating cylinder mold which is not entirely submerged in the stock. Means are provided for maintaining a partial vacuum inside a given zone of the interior of the cylinder mold.—A.P.-C.

Paper Machine Drive. J. M. Voith. Fr. pat. 730,202.—The main portion of the energy required for each section is transmitted to the intake shaft without any intermediate regulating mechanism. A small additional amount of power, sufficient to take care of the requirements for adjustments of draw, is transmitted through an adjustable-speed transforming mechanism. The two inputs of power are combined by means of a differential train.—A.P.-C.

Frame for Flat Screens. Sidney B. Gorbutt. U. S. pat. 1,870,846 (Aug. 9, 1932).—A unitary steel frame for supporting flat screens consists of a rectangular top formed of angle bars having their outer edges downturned and the top of their end members flush with the top of their side. The angle bars are supported on a number of pairs of transversely spaced legs, each pair having a cross tie between the lower ends of the legs. A central longitudinal tie lies on the cross ties forming a support for the operating mechanism of the screen diaphragm.—A.P.-C.

Recent Equipment Developments. Paper Industry 14:508-516 (Oct., 1932).—A partial review of progress by machinery manufacturers in perfecting equipment for process and auxiliary purposes in pulp and paper mills—A.P.-C.

Control of Seconds and Waste in the Manufacture of Coated Paper*

By C. W. Richards[1]

Abstract

The importance of a system of control with reference to the defects causing seconds and waste in the manufacture of coated paper is discussed. A method for laying out a control program is outlined, involving classification of defects causing seconds and waste, followed by corrective measures. Suggestions are offered for collection of essential information and for the corrective measures necessary.

Introduction

It may be that the subject of seconds and waste will seem to many altogether too ancient and familiar to warrant discussion here. The very fact that seconds and waste are ancient and familiar and have troubled coated paper manufacturers since paper was first coated is in itself an indication of the importance and seriousness of the subject.

This elementary discussion of the control of coated seconds and waste is not presented with any thought that the ideas involved are new or that many systems such as outlined are not already in operation. It is hoped that by thus bringing the subject into the open, discussion may result which will warrant an investigation by the coating committee of the general subject of defects causing seconds and waste, particularly defects common to all mills, which may result in a standard classification and nomenclature. Such a standard classification would obviously aid in the exchange of information between mills.

Importance of Seconds and Waste Control

There can be no question that control of seconds and waste is worth while when the fact is considered that every ton of seconds produced, even on the cheaper grades of coated papers, represents a loss of about $50.00 and that on high grade enamels where the differential between perfects and seconds is greater the loss may amount to approximately twice this figure, while waste with a still greater differential represents a still greater loss.

Classification

In attacking a problem of this type much waste of time and energy can be avoided by a careful analysis and classification of the variables. In the case of seconds and waste it is evident that to guard against spending time and money on efforts to eliminate defects either of little real importance or not readily subject to control, a classification of defects causing seconds and waste is desirable. Confining ourselves for the time being to the question of defects causing seconds, classification along three distinct lines is possible.

First according to importance, as follows:

a. Defects occurring frequently and affecting large quantities of paper each time—major defects.

b. Defects occurring frequently but affecting only small quantities each time, or defects occurring infrequently but affecting fairly large quantities each time—borderline defects.

c. Defects occurring infrequently and affecting only small quantities each time—minor defects.

This type of classification is subject to continuous change, for example during certain seasons of the year water or atmospheric conditions may be bad and cause raw stock dirt to show as a major defect, while at other seasons it should be only a borderline or a minor defect.

Methods of making this classification will be discussed later.

Having classified defects as major, borderline or minor a second classification is made according to the status of existing information concerning each defect as follows:

a. Defects where cause and remedy are known.

b. Defects where cause is known but remedy is not known.

c. Defects where neither cause nor remedy is known.

This classification can be made from information available at any individual mill, and will vary considerably between different mills according to the amount of constructive thought which has been given to the problem. Examples are—

Under (a) stick marks, known to be caused by dirty sticks and known to be curable through the exercise of proper cleanliness precautions.

Winder wrinkles, known to be caused by winders slightly out of line and known to be curable through realignment of winders followed by proper mechanical maintenance.

Under (b) stain streaks known to be caused by undispersed color aggregates, but for which the cure may be uncertain.

Under (c) lifting or picking on the cotton rolls of the calender stacks for which cause and remedy may both be uncertain.

Still a third classification according to source of the defect will probably be found helpful, as follows:

a.—Due to raw stock.
b.—Occurring on coating machines.
c.—Traceable to color preparation.
d.—Occurring on calender stacks.
e.—Occurring during finishing.
f.—Chargeable to two or more of the preceding sources.

This classification should be similar for all mills and the necessary information should be available in the personnel as a whole although it may be necessary to collect and assemble it. For example—

Under (a) raw stock dirt, cracked edges in raw stock rolls, or curly paper.

Under (b) skipped coating, hair marks, or color edges.

Under (c) paper off shade due to incorrect staining, stain streaks, or poor brushing due to variable color properties.

Under (d) calender cuts, stamp marks, or dull spots.

Under (e) cutter dirt, cutter wrinkles, trimmer cracks, or wrinkled sheets.

Under (f) certain types of dirt which can come from several places in the mill, color lumps which may be traceable to color preparation or to dirty brushes, or running spots which may occur either in winding on the coating machines or on the calender stacks.

Frequently examples occur where specific items can be

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* Presented at the annual meeting of the Technical Association of the Pulp and Paper Industry, New York, N. Y., February 13-16, 1933.
Contribution of the TAPPI Coating Committee.
[1] Chemical engineer, Oxford Paper Company, Rumford, Maine.

traced to one source but the method is too cumbersome to use on every item. In this case whether to charge to (f) or whether to investigate enough instances to permit charging to the most probable source is a matter of individual judgment.

Collection of Data

As previously noted the second and third classifications can usually be made from information already available, but the first classification into major, minor and borderline defects is less simple. A method which has been successfully used for collecting the necessary information to make such a classification may be of interest.

A daily report is turned in from the sorting room stating the orders in the sorting room during that day found to cause heavy seconds. The cause and if possible the source of the seconds is noted in each case. This information is summarized weekly and quarterly stating the number of orders reported showing a given defect. No attempt is made to convert the number of orders into tonnage, in fact, at present such a conversion would be difficult since a given order may appear on several days in case the sorting of that order covers a period of more than one day.

During each quarter the weekly summaries are used as a guide for placing the emphasis in the campaign against seconds production with the quarterly report serving as a background and master control to guard against concentration on unimportant defects which appear important temporarily and against overlooking important defects which may not appear in the summary for a given week.

The information in the daily report is collected by the finishing foreman from the individual sorters.

This method is open to certain obvious criticism, but has on the other hand certain definite advantages. It is evidently not entirely accurate, particularly over short periods of time, since it is related not to tonnage but to the number of orders in the finishing room in a given time. The size of these orders may of course vary considerably. This apparent inaccuracy, however, tends to correct itself over longer periods of time since the variations in the size of orders counterbalance themselves.

Probably the system's most serious fault lies in the fact that it is possible to completely overlook or minimize an extremely important defect which may occur in almost all orders but seldom in sufficient quantity to be reported, but which may nevertheless be very definitely a major defect. It is also conceivable that time may be wasted on a relatively unimportant defect which may, because of conspicuousness impress the sorters sufficiently to cause it to be reported although the quantity of paper involved may be very small.

An attempt is made to eliminate this danger by resorting each day a table of seconds chosen at random and noting the exact proportion of all defects. On the tables taken from orders not reported high in seconds this resorting should after a reasonable period of time locate any important defects not caught in the system proper. If the tables are taken from orders reported high in seconds an additional guard against being misled by conspicuous but unimportant defects is offered.

In favor of the system are very definite advantages. Little or no extra work or personnel in the operating department is involved; since the daily reports on a given order come in most instances from several operators and since the report as a whole includes almost the entire sorting crew over a period of any considerable length, the figures tend to be entirely unbiased. Furthermore, the information, with the possible exception of the quarterly summary, is always automatically up to date.

Discussion of other methods of classifying seconds as major, borderline, or minor would be particularly welcome.

Order of Attack

The three classifications having been made the next logical step is to outline the order in which defects should be attacked. Probably definite results will be secured most rapidly by the following order:

1. Major and borderline defects of known cause and remedy.
2. Major and borderline defects of known cause but unknown remedy, or

2a. Minor defects of known cause and remedy.

3. Minor defects of known cause but unknown remedy.
4. Defects of unknown cause or remedy.

The order in which (2) and (2a) should be attacked is a matter of judgment involving the question of the amount of work necessary to determine remedies for defects under (2).

Methods of Correction

Actual methods of attack are in general reasonably clear cut.

If the elimination of the defect appears to be through mechanical changes these should be made promptly provided the expense involved is justified. Frequently very considerable savings result from relatively small expenditures on this line.

If the defect arises in lack of cleanliness a periodical clean up schedule is the obvious remedy. Oil and grease spots may be almost completely eliminated through this means. The evidence indicates that they could be completely overcome if the frequency of the cleaning were increased, but when they are reduced definitely to a minor defect it is questionable if further expense is warranted. The question of cost balance must be constantly borne in mind to avoid wasting money on the complete elimination of defects which have become so minor that no expenditure is justified.

If the carelessness of operators is the source of a major defect some educational program should be undertaken. This is probably best handled through education of the foremen who can then impress their workmen with the importance of proper care.

Defects traceable to raw materials can be overcome gradually through the development of proper specifications. In the case of raw stock it must be borne in mind that the paper maker has his own cost balances to consider and a properly cooperative spirit must be shown.

Where cause or remedy or both are unknown the question of whether or not the problem of eliminating the defect warrants study by the research department should be decided on the basis of a cost balance involving the magnitude of the problem and the frequency and seriousness of the defect.

Waste Control

The question of waste reduction can be handled along lines roughly similar to those outlined for seconds except that it must be borne in mind that there exists a certain definite amount of truly unavoidable waste and once this has been deducted the tonnage of waste involved may be smaller than is apparent from a casual examination. Although the loss involved in waste is high per ton care must be exercised to avoid being misled.

In general a system to control seconds will more or less automatically reduce waste somewhat since many of the causes of seconds are also causes of waste. For example edge cracking which causes seconds is also a cause of waste from excessive breaking.

Possible Troubles

Once a program of control of seconds and waste is well under way instances may arise of the reappearance of defects thought to be well under control. This in practically all instances indicates carelessness, either in maintaining cleaning schedules, educational program or in mechanical maintenance of new equipment. To again overcome the defect is usually a matter of education.

Occasionally what appears to be an entirely new defect will occur. On investigation it will in most cases be found that the defect is not really new but has occurred before but has gone unnoticed because it came always in conjunction with another defect which has been eliminated or reduced. The importance of the "new" defect should be investigated and its classification determined before taking the steps necessary for its elimination.

Acknowledgment

Permission by the Oxford Paper Company to present this information is gratefully acknowledged.

A Simple and Reliable Photo-Electric Opacity Tester*

By Myrl N. Davis[1]

Abstract

A critical analysis of the commercially available opacimeters together with a statement concerning the required standards for opacity measurement. A new instrument which has been designed to conform to such standards is described. A plea to the paper industry to adopt the contrast ratio as a measure of opacity.

For a number of years the testing of opacity of book paper has been in a very confused state due to the use of a variety of opacity testers on the market. None of these were entirely satisfactory and our company, together with other paper manufacturers, has suffered from this confusion and lack of standards in testing opacity. One result of this confusion is that we now have in use in one of our mills six different opacity testers, involving four different methods of measurement. These include the Bureau of Standards instrument, a sheet count instrument originally called, I believe, the Klemm opacity tester, a commercial instrument for measuring opacity by means of a measurement of transmitted light using a photo-electric cell, a method of visual opacity measurement, made by placing a series of varying sized black letters beneath the sheet and taking as the opacity the smallest letter which can be read through the sheet, another instrument for measuring opacity as contrast ratio by photo-electric means with an amplifying circuit, and lastly the instrument to be described in this paper. We have been forced to this variety of equipment by the demands of different customers, who specify their requirements in terms of any particular instrument they may happen to be using.

Plea for the "Contrast Ratio"

The following paper is, frankly, a plea to the paper industry for the adoption of the "contrast ratio" or what we have termed "printing opacity" as a measure of opacity of paper. This amounts to the suggested adoption of a particular type of instrument. We should be sorry, indeed, if the fact that we also describe a new opacity tester which is being put on the market and which we believe to be in several respects an improvement over the instruments which are already available should detract from the effectiveness of this paper.

The nature of the situation is such that we must pick certain flaws in those opacity testers now in use, at least, in their present form, because a suitable and permanent standardization of opacity tests cannot be attained by their use.

It is immaterial to us what instrument is used. In fact it would be far better that the industry adopt a correct optical method of making the opacity test, and define a suitable opacity coefficient than use any particular instrument. Any opacity tester using the accepted method and giving its results in the accepted coefficient could be used.

Previous Work

In a previous paper (*1*), delivered before this body, the writer discussed the measurement of opacity and the instruments available for its measurement. It was concluded that the coefficient of printing opacity (defined to be the ratio of the light reflected from a paper sample in the direction of the eye when the sample is backed by a perfectly black body to that when the sample is backed by a stack of the same kind of paper) is the one opacity coefficient which may always be relied upon. It was shown, with data obtained from samples of paper, that the old "sheet count" method of opacity is thoroughly unreliable, that measurements of transmission introduces occasional fairly important errors and that even measurement of contrast ratio (the opacity coefficient obtained by use of the Bureau of Standards opacimeter) offers a possibility of small errors which are due to the method of the test itself, despite the considerable similarity between the test for contrast ratio and that for "printing opacity."

Likelihood of Grave Errors

In addition to the objections, based on theory and supported by experimental evidence, to the available opacity tests, the writer pointed out that those instruments in which a photo-electric cell is substituted for the human eye in the comparison of light intensities are liable to grave errors due to the fact that no known photo-electric cell responds to colored light in the same way as does the human eye. It was shown that the errors introduced by such unsatisfactory color sensitivities were occasionally very large. It was pointed out that such errors could be eliminated and the many advantages arising from the use of a photo-electric cell could be retained by insertion into the optical path between light source and photo cell of a light filter, such that the combination of filter plus photo cell would give, throughout the visible spectrum, a response closely similar to that of the human eye.

The situation, with respect to opacity measurement, has not changed materially in the fifteen months since the writer delivered his first paper. At the present time there are several different opacity measuring instruments in use by manufacturers and consumers of paper.

Each of these instruments uses a different method of measurement, the results of opacity tests being expressed

* Presented at the annual meeting of the Technical Association of the Pulp and Paper Industry, New York, N. Y., February 13-16, 1933.
Contribution of the TAPPI Fundamental Research Committee.
[1] Research physicist, Kimberly-Clark Corporation, Neenah, Wis.

in a different coefficient. Due to the differences in methods of measurement, an opacity coefficient determined by the use of one instrument cannot be converted into one of the other systems by use of a calibration curve without exposing the user of the conversion to the probability of an occasional serious error.

Standards Required

Let us consider for a moment just what must be the characteristics of an opacity tester such that the proposed standardization could be satisfactory and permanent. The necessary conditions appear to be that:

1. The acceptable method must be one which reproduces in the test the conditions under which the paper is to be used.
2. The acceptable coefficient of opacity must be one which will be identical for all testers which satisfy condition 1. Thus improvements in instruments which might be made would not destroy the value of previously existing data.
3. Any instrument used must be:
   a. Accurate; b. Precise; c. Easy to operate and require little technical training and skill on the part of the operator; d. Capable of making many tests a day without undue strain upon the operator; e. Rugged; and f. Self-calibrating, if possible.

Condition 1 seems to require that the acceptable test be one for "printing opacity" and that the acceptable coefficient accordingly be the ratio of the intensity of light reflected by a single sheet of the paper measured to that reflected by a thick pile of sheets of identical composition, the illumination to be diffuse and the intensities to be measured in the direction of and by the human eye or its equivalent. By a thick pile of sheets is meant a pile containing enough paper so that doubling its thickness will not change the measured opacity.

An Important Argument

It can be argued, however, that the above method would preclude an opacity measurement upon a sample of paper so small that a thick pile of sheets is not obtainable. This argument has considerable weight with any manufacturer who is occasionally given a small sample of paper by a customer and ordered to produce a similar paper. It cannot, I believe, be ignored. It must be made possible either to measure contrast ratio for such an occasional sheet and to translate the result into terms of printing opacity by comparison with any available samples of similar composition and color, or else to adopt contrast ratio as the standard opacity coefficient accepting any errors due to method which may be present and, whenever such errors seem likely to appear, to compare the samples in question by measuring their printing opacity. Regular use of contrast ratio would have the added advantage of almost doubling the range of opacity values covered by papers used in printing and less reliance would have to be placed upon the precision and accuracy of the instrument used. In either case it is desirable that the opacity testing instrument be capable of measuring either contrast ratio or printing opacity without undue difficulty.

One Instrument Available Without Change

The writer knows of only one instrument for the testing of opacity which is already in use and which is capable, without change, of measuring both printing opacity and contrast ratio. A second instrument, the Bureau of Standards opacimeter could be adapted to making either determination by changes in the method of mounting the sample and standard white reflector, so that a pile of sheets could be used in place of the standard white body.

When we come to a consideration of the group of conditions pertaining to the actual instrument used as distinguished from the testing method we can eliminate at once as being inaccurate all opacity testers employing photo-electric cells which make no claim to having a color sensitivity identical with or closely similar to that of the human eye. To the best of the writer's knowledge, that eliminates all photo-electric opacity testers commercially available, including the one, mentioned in the preceding paragraph, which measures contrast ratio and printing opacity.

The Bureau of Standards opacimeter, in the hands of a skilled operator possessing normal eyesight, is accurate and, if used on samples which are not too opaque, is precise. A very little experience with this instrument, however, will convince the paper maker that it is not easy to operate and that it is altogether too slow to be of much use in the control laboratory.

In the previous report, the writer described a photo-electric opacity meter which measures contrast ratio or printing opacity at the will of the operator, which is precise, speedy in operation and self-calibrating and which would have been easy to operate and rugged were it not for the fact that an amplifier had to be used to make the currents delivered by the photo-electric cell readable on a rugged meter. A filter was used with the photo-electric cell in a partially successful attempt to make the color sensitivity of the photo-electric cell plus filter match that of the average human eye. The instrument as described was only of use in the research laboratory.

Elimination of the Amplifier

Elimination of the amplifier has been made possible by the appearance on the market about a year ago of a new type of light sensitive cell. Extensive tests of several of these new cells showed that they were rugged, could not be easily damaged and were reliable for use in a photometric instrument. The photo-electric currents produced when used in an opacity meter of the type mentioned above were large enough to be readable on a rugged portable microammeter without any amplification. After suitable choice of this meter had been made, the photo-electric currents were found to be proportional to the incident light intensities to well within the limits of accuracy required. Finally, the color sensitivity was such that a light filter could be found by use of which the color sensitivity of the combination of cell plus filter would be matched to that of the average human eye with good accuracy. In short, this new photo-electric cell had every characteristic necessary to make possible the building of an instrument for the accurate measurement of opacity.

New Opacity Testers

Three new opacity testers were built incorporating the new cells but using identically the same optical principles as the original instrument described in my previous paper. It was found that the three testers gave, within the limits of error of measurement, identical values of opacity when used on identical samples of paper. This was found to be true over a wide range of colors and opacities of paper samples and despite the fact that the eight inch, white lined "integrating sphere" of the original tester was replaced in one of the new instruments by an eight inch, white lined cube, in another by a five inch, white lined cube and in the third by a five inch, white lined sphere. All three testers gave opacity values which were on the average slightly higher (about 1½ per cent) than those given by the original instrument. This difference is in good accord with the fact that the color sensitivities of the new instruments were better approximations to that of the average human eye than was the old.

One of the new instruments was kept in the Research laboratory, one placed in a paper mill test station for use in control work and one was loaned to H. M. Cyr of the New Jersey Zinc Company for use in opacity studies which he was conducting in the laboratories of the Institute of Paper Chemistry, Appleton, Wis. All three instruments have functioned satisfactorily in actual use.

Only after it became certain that the new type of opacity tester was rugged, accurate, reliable and suitable for use in the control laboratory was the decision made to allow it to be manufactured commercially and placed upon the market. It was realized that the addition of another opacity tester to an already crowded field could be justified only if the new tester could be expected to be of considerable assistance in the eventual reduction of opacity testing to some sort of order. This new tester meets each condition which has been laid down for an instrument suitable for use in the standardization of opacity testing. Since no other opacity testing instrument on the market also meets all of these conditions, it is felt that making this new tester generally available is justifiable.

Operation Simple

Operation of the new opacity tester is simple. A single sheet of the sample is placed over an opening in one end of the instrument case. A black lined, light tight chamber mounted on a pivoted arm is allowed to hold the sample in place and the deflection of the needle of a meter located in the top of the instrument case is noted. If "printing opacity" is the coefficient to be measured, a pile of sheets similar to the first, and sufficiently thick so that the addition of as many more will not change the meter reading, is placed behind and against the original single sheet and the meter reading again noted. Division of the first meter reading by the second gives the "printing opacity" of the sheet.

When it is desired to measure contrast ratio rather than "printing opacity" the only change in procedure is to note as the second meter reading that obtained when the sample has behind and against it a block of magnesium carbonate rather than a pile of paper. The value of the opacity in terms of contrast ratio is the ratio of the first to the second meter reading as obtained under these conditions. The carbonate block is mounted on an arm so that it automatically swings into place as the black lined chamber is turned out of the way.

Since it is often necessary to make opacity measurements on paper samples which are already printed, the instrument has been so designed that the required clean area of the paper can be found in the margin of almost any magazine. It is, of course, necessary that the portion of the sample which is subjected to measurement be clean on both sides.

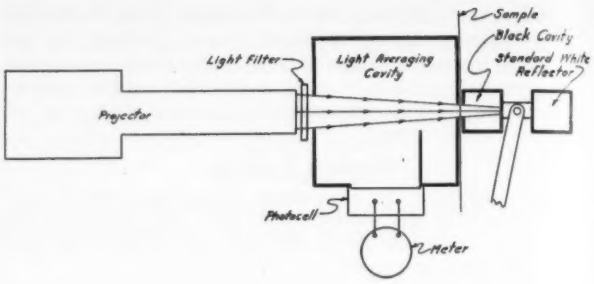

FIG. 1.
Diagram showing principle of operation of Davis Opacimeter.

Cutting of samples to some particular size and shape is destructive both of time and of paper sample. In order that this may be avoided, the instrument has been designed so that either large or small samples may be used without damaging the paper in any way. The largest size of sample to be used without tearing or cutting will be set by its unwieldiness, the smallest must be only slightly wider than the opening in the instrument case, and perhaps two inches in length.

Power for light source will be obtainable from any a. c. light socket, the voltage being reduced to that required by the light source by a voltage regulating device which automatically irons out all fluctuations in the supply voltage, thereby assuming a steady source of light for the opacity measurements. Models will be built for use on 60 cycle and on 25 cycle power. If it is desired to use the instrument on d. c. power it will be necessary to use a storage battery, charging it from the main through a resistance and discharging through the light source simultaneously. No batteries of any kind will be necessary for the a. c. instruments.

This new opacity tester will be manufactured and sold by the Bausch and Lomb Optical Company, Rochester, New York. Its design and construction will thus have the benefit of that company's years of experience in building optical instruments.

One Standard Method Desired

In closing, we should like to repeat that we are far more desirous that one standard method of opacity testing using one carefully defined unit of opacity be generally adopted, than we are that any one opacity testing instrument shall be so chosen. Only in this way can a permanent standardization be achieved without, at the same time, precluding the possibility of future advances in opacity testing instruments.

LITERATURE CITATION
(1) Davis, M. N., Paper Trade Journal, 93, 39 (October 15, 1931).

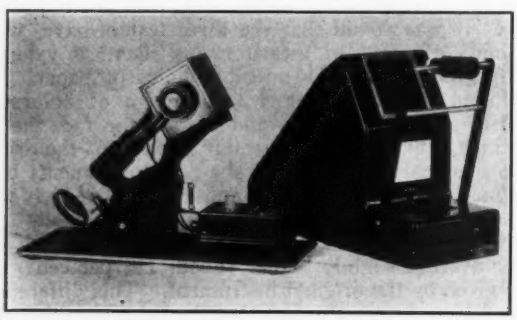

FIG. 2.
Davis Opacimeter showing construction.

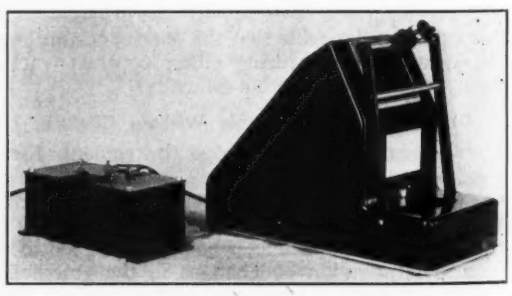

FIG. 3.
Davis Opacimeter showing voltage regulating transformer.

Relative Stabilities of Bleached Rag Half Stocks and Bleached Purified Sulphite Pulps To Degradation By Calcium Hypochlorite Solutions*

By Harry F. Lewis[1]

Preface

Supplementing my report which was read at the Technical Association meeting in Holyoke in September, 1932, entitled "The Relative Stabilities of Rag and Purified Sulphite Pulps," and as an additional contribution to the further knowledge of the study of paper-making fibers, I am presenting this second paper on the subject of "The Relative Stabilities of Bleached Rag Half Stocks and Bleached Purified Sulphite Pulps to Degradation by Calcium Solutions." HARRY F. LEWIS.

Abstract

The relative chemical stabilities of certain selected rag and purified wood pulps toward degradation by strong calcium hypochlorite solutions have been intensively investigated. The materials studied consisted of two bleached rag stocks, one from new unbleached cotton clippings—number 1 muslin, the other from old white and colored rags—designated as thirds and blues, two bleached Alpha pulps—one submitted by the Brown Company, the other withdrawn in the original package from the storage room of a user, and finally, for purposes of comparison, on ordinary quick-cook bleached balsam sulphite.

The hypochlorite solutions employed were made by diluting a mill concentrated bleach solution to yield solutions containing five and ten grams of available chlorine per liter, respectively. The degradations have been followed at 25, 37.5 and 50 deg. C. using as a measure of degradation decreases in cuprammonium viscosities and α-cellulose and increases in β- and γ-cellulose and copper number.

The data presented give further support to a conclusion expressed by the author in an earlier paper[2] that rag stocks of the type of number 1 muslin are more resistant to the degrading action of chemical and physical agencies than are the purified wood pulps. In this case, the agency of degradation consists of the oxidizing action of a bleach solution.

Statement of the Problem

In the first paper of this series, already referred to, much data was presented to indicate the relative behavior of representative rag and purified wood pulps with respect to a variety of conditions bringing about degradation. Conditions studied include acid and alkaline solutions of varying concentrations and at different temperatures, heat alone and in the presence of oxygen, and light from at least two sources. The results of that earlier work may be briefly summarized by stating that pulps possessing high cuprammonium viscosities and α-cellulose contents and low copper numbers, pentosan and γ-cellulose contents withstand degrading agencies for longer periods than pulps having less desirable amounts of these various substances and properties.

Of all the stocks investigated in that earlier study, the rag stocks prepared from new unbleached clippings of the type known as number 1 muslin were better in all the tests outlined than were the other stocks investigated. The two other rags stocks investigated at that time, namely, blue overalls stock and thirds and blues stock, having more desirable original α-cellulose and copper number values were capable of enduring longer periods of degradation than the purified wood pulps which had lower α-cellulose contents and samewhat higher copper numbers. From the standpoint of viscosity behavior, the blue overall rag stock and the Alpha pulps, while inferior to the muslin, were superior to the thirds and blues.

The work to be described takes up in somewhat the same fashion the behavior of similar characteristic stocks toward degradation by calcium hypochlorite of two concentrations and at two temperatures.

A. DEGRADATION BY OXIDATION.

One of the most drastic agents of degradation of cellulose is that of oxidation. Degradation by accelerated ageing at a temperature of 100 degrees probably results in part from hydrolysis by adsorbed or other bound water but to an even greater degree from oxidation by atmospheric oxygen. The degradation of celluloses by alkaline solutions, likewise, is chiefly an oxidation in which the anhydroglucose units of the cellulose are progressively attacked by the alkaline solutions in combination with atmospheric oxygen. The significance of oxygen in these reactions is indicated by work reported in the previous article.[2]

Because of the industrial importance of a knowledge of the conditions under which bleach solutions degrade cellulose, it was decided to carry out the first phase of the study of the relative action of oxidizing agents on characteristic rag stocks and purified wood pulps, using calcium hypochlorite solutions as agents of oxidation. Consequently, samples of a number of types of rag stocks and purified wood pulps have been exposed to the action of hypochlorite solutions of two different concentrations, at two different temperatures, for varying lengths of time. The solutions used have contained five and ten grams of available chlorine per liter respectively. Degradations have been followed at 25 and 50 deg. C. for times ranging from 15 minutes to 5 hours. A third series of oxidations was carried out at 37.5 degrees for one hour using both available chlorine

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* Second in a series of articles, the first of which appeared in the Paper Trade Journal, Vol. 95, no. 21: 29-42 (November 24, 1932).
Presented at the annual meeting of the Technical Association of the Pulp and Paper Industry, New York, N. Y., February 13-16, 1933.

[1] Member TAPPI, professor of organic chemistry, Institute of Paper Chemistry, Appleton, Wis.
Contribution of the TAPPI Fundamental Research Committee.

[2] "The Relative Stabilities of Rag and Purified Sulphite Pulps," Paper Trade Journal, Vol. 95, no. 21: 29-42 (November 24, 1932).

concentrations so as to determine more effectively the relative temperature influence.

B. Description of Stocks Employed.

The stocks investigated are of approximately the same nature as those described in the earlier investigation. With the exception of "2 b" they were all withdrawn from mill stocks.

1. *Rag stocks.*

a. *Number 1 muslin.* This material was prepared from new unbleached rag clippings by means of such carefully controlled cooking and bleaching conditions as would insure a stock of the highest quality. The chemical constants for the stock indicate it to be comparable with commercial types of number 1 stock.

b. *Thirds and blues.* In order to yield better comparative data, a Thirds and Blues stock was selected such as would have approximately the same α-cellulose content as the highly purified wood pulps. In order to obtain an α-cellulose content of 91.5 per cent, it was necessary to accept at the same time a stock having a low cuprammonium viscosity. The viscosity value for the particular stock was 17.0 which is somewhat lower than the values for thirds and blues stock investigated in the earlier work.

2. *Purified Wood Pulps.*

a. *Alpha 5285.* Through the courtesy of the Brown Company of Berlin, N. H., an Alpha pulp was obtained which was considered to be representative of the highest type of purified wood pulp. Its α-cellulose content as determined by the method used at the Institute of Paper Chemistry, is somewhat higher than that of either of the Alpha pulps used in the earlier work, as is its viscosity.

b. *AC Alpha.* At the time of the initiation of this investigation at the Institute of Paper Chemistry an unopened original package of Alpha pulp was obtained from the warehouse of a mill using large quantities of Alpha pulp commercially. The values for the α-cellulose content of this sample as determined at the Institute of Paper Chemistry compare favorably with similar values for 24 other commercial samples selected at random and analyzed by various investigators in a number of laboratories. In fact, its α-cellulose content was higher than those of 21 samples. This sample has been used throughout the entire study.

3. *Bleached Sulphite.*

In order to round out the picture, a sample of ordinary quick-cook bleached balsam sulphite of low α-cellulose and high copper number has been run through the same series of tests.

The constants for these five stocks are listed below:

TABLE I
ANALYTICAL CONSTANTS OF STOCKS

Sample	Original viscosity	Copper number	α-cellulose	β-cellulose	γ-cellulose
Muslin	240	.246	97.1	2.2	0.0
Thirds and blues	17.0	.359	91.5	8.4	1.0
Alpha 5285	65.0	.560	92.1	4.7	3.2
AC Alpha	34.4	.452	90.5	2.5	4.4
Bleached sulphite	23.0	1.83	79.5	8.3	9.4

C. General Statement of Results.

The results of the study indicate that the stocks at 25 deg. C. are changed only slightly from a chemical standpoint, although their colloidal structure is rapidly altered. At 50 degrees on the other hand, the colloidal degradation proceeds to be followed shortly thereafter by a very marked change in the chemical structure of the pulp. The α-cellulose disappears to a considerable extent being converted almost completely into β-cellulose; only a slight change in the γ-cellulose content is noticed. All three wood pulps differ from the rag stocks in that as a result of continued oxidation at the elevated temperature, there are formed apparently from the β-cellulose fraction new bodies insoluble in cold 17.5 per cent sodium hydroxide solution. These reappear as α-cellulose in the gravimetric determination. This phenomenon has not appeared as the result of oxidation of the rag stocks. An additional difference between the Alpha and rag stocks is indicated by the determinations for copper number, for the purified wood pulps show a more rapid increase in copper numbers as the result of oxidation than do the rag stocks. Likewise, the wood pulps go into solution at a somewhat more rapid rate as a result of oxidation at 50 degrees than do the rag stocks.

Methods Employed

A. Operation technic.

In order to determine the conditions which will be productive of the most information with the least amount of effort, a number of preliminary runs were carried out in which rates of oxidation were studied at various temperatures. These indicate that oxidation studies at 25 degrees could best be used for following colloidal changes, and those at 50 degrees for following chemical changes.

An amount of available chlorine somewhat greater than would be commercially used for bleaching purposes with stocks of the types to be described, was selected so as to magnify the usual changes occurring during bleaching. These preliminary tests showed that in order to get any accurate control it was necessary to remove at the conclusion of the run any excess of bleach. This was accomplished by discharging with sodium thiosulphate solution. Likewise, the oxidized stock must be air dried rather than oven dried, for the oxidation products are in such a condition as to be rapidly degraded by oven-drying.

The actual runs were carried out in the following manner: Samples of the various stocks shredded in the Gosta Hall disintegrator are weighed out to the desired amount, in some cases ten grams and other cases fifteen grams, accurate to the third decimal place, and are placed in wide mouthed bottles of sufficient size to contain the stock and bleach solution. These bottles are then immersed in a constant temperature water bath at the desired temperature for a period of one-half hour. Simultaneously, a flask containing the necessary amount of bleach solution is placed in the constant temperature bath for the same length of time. The volume of solution used is 300 cc. in the case of the 15 gram samples and 200 cc. in the case of the 10 gram samples. Such solutions are prepared from commercial bleach solutions by diluting with a calculated amount of water. The active chlorine content of the solutions used is determined iodometrically. At the appropriate time, the hypochlorite solution is poured from its flask into the bottle containing the shredded stock and this is stoppered and placed in the constant temperature bath for the desired time. At the conclusion of the experimental period, 100 cc. of solution of sodium thiosulphate containing 210 grams per liter are added where 15 gram samples are used, and 70 cc. with the 10 gram samples. The amount used is sufficient to discharge completely the active chlorine. The stock is then filtered on a large porous fritted glass Büchner funnel and washed thoroughly with a constant volume of water so as to remove any inorganic salts or soluble oxidation products. The cake is broken up and set out on a large watch glass to air dry at room temperature.

After the pulp is air-dried it is weighed to the third decimal place on an analytical balance and placed in a

glass top air tight fruit jar where it is allowed to remain until the moisture content of the various parts of the cake are equalized. Samples from this are then taken for analytical purposes.

B. Analytical Methods Used.

1. *Cuprammonium Viscosity.*

Tentative official standard method of the Technical Association of the Pulp and Paper Industry: Technical Association Papers, Series XV: 217 (June, 1932).

2. *α-Cellulose.*

The method for the estimation of the α-cellulose content of the pulps is Method 4 of the Cellulose Division of the American Chemical Society as described in Industrial and Engineering Chemistry, Analytical Edition, Volume 1, no. 1; 54 (January 15, 1929).

Approximately a 3 gram sample, previously disintegrated in the Gosta Hall disintegrator and weighed accurately in a weighing bottle, is placed in a 250 cc. pyrex beaker. Thirty-five cubic centimeters of 17.5 per cent carbonate-free sodium hydroxide solution [17.5 grams of sodium hydroxide in 100 grams of solution (20 degrees)] are added and the solution allowed to stand for 5 minutes. With a short glass rod, the end of which has been flattened out to form a disk 1 cm. in diameter, the pulp or cotton is macerated for 10 minutes, adding intermittently in 10 cc. portions a total of 40 cc. of sodium hydroxide solution (20 degrees) during this interval. The beaker is covered with a watch glass. After 30 minutes' additional mercerizing treatment in a water bath at 20 deg. C. (total mercerization time 45 minutes) 75 cc. of distilled water (20 degrees) are added to the alkali-cellulose mixture followed by a thorough stirring. The contents of the beaker are filtered immediately by means of suction on a 40 cc. fritted Jena glass filtering crucible (1 G 1) or better on a fritted glass Büchner funnel. The filtrate is poured through the mat a second and a third time, if necessary, to catch any fine material. The residue in the crucible is washed with 750 cc. of distilled water (20 degrees) by means of suction. During this operation the mat should be thoroughly broken apart with a fine pointed glass stirring rod. At this point, the filtrate is removed for testing for β- and γ-cellulose, the suction tube is disconnected, 40 cc. of 10 per cent acetic acid (20 degrees) are added and allowed to soak five minutes. Then the suction is applied to remove the acid. The α-cellulose is washed with distilled water —(20 degrees) until free from acid. Litmus paper is used to test the filtrate. The α-cellulose is carefully removed from the crucible for funnel to a tarred, flat, glass-stoppered weighing bottle. The α-cellulose mat is broken apart and dried at 105 deg. C. to a constant weight —that is, the first constant consecutive weight obtained after 1 hour heating intervals following an initial drying

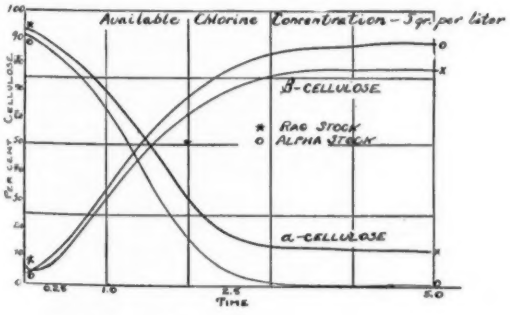

Fig. 1
Variations in Alpha- and Beta-Cellulose contents of average rag and alpha stocks.

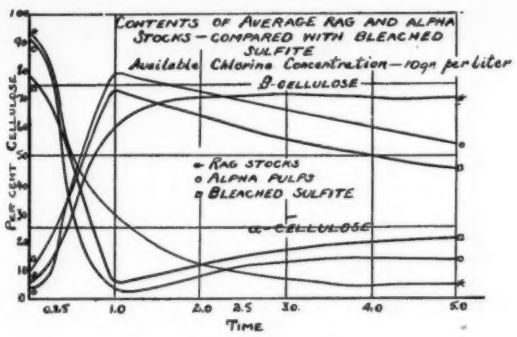

Fig. 2
Variation in Alpha- and Beta-Cellulose.

of at least 6 hours. The weighing bottle and its contents are allowed to cool in a desiccator for 30 minutes and then weighed.

The α-cellulose yield is calculated on the oven-dry weight of the material.

One gram samples for moisture determination are weighed out at the same time and dried in the oven under the same conditions.

3. *β- and γ-Cellulose.*

The method outlined by the Forest Products Laboratory for the determination of volumetric β- and γ-cellulose[3] has been modified so as to use the filtrate from the regular gravimetric α-cellulose determination as outlined above. This solution, consisting of 75 cc. of 17.5 per cent sodium hydroxide solution and approximately 825 cc. of water, is withdrawn from the filter flask and is made up to a liter in a volumetric flask. A 500 cc. sample is removed in a second volumetric flask and made up to 700 cc. with distilled water for use in the determination of β- and γ-cellulose. The remaining 500 cc. sample in the liter volumetric flask is acidified with 10 per cent sulphuric acid solution using a drop of aqueous methyl orange solution as an indicator after which it is made up to 700 cc. with distilled water. After standing for several hours, the β-cellulose coagulates and settles, and the supernatant liquor is withdrawn by a pipette for the determination. From this point on the determination is carried out in essentially the same manner as outlined in the method of the Forest Products Laboratory. Twenty-five cc. portions are used for titrations and to these are added 5 cc. of standard potassium dichromate solution and 60 cc. of 72 per cent sulphuric acid. The beaker and its contents are boiled for 5 minutes, cooled with ice, and titrated with ferrous ammonium sulphate using potassium ferricyanide as an indicator.

4. *Copper Number.*

The significance of the analytical data has already been rather thoroughly discussed on page 32 of the first article of the series.[2]

Experimental Results

A. Loss in Weight.

The rate of attack of the oxidizing agent on the pulp may be measured roughly by following the loss in weight during the process of the oxidation reaction. The values which indicate the changes in weight are outlined in Tables II, III and IV. They should be considered as only approximately quantitative for the reason that the first weights listed in the tables were the air dry weights of the

[3] Bray, M. W. Methods used at the Forest Products Laboratory, August, 1928; 18 Technical Association Papers, Series XIII, 273 (May, 1930).

TABLE II
LOSS IN WEIGHT ON OXIDATION OF PULPS WITH CALCIUM HYPOCHLORITE SOLUTION AT A CONSISTENCY OF FIVE PER CENT

Sample	Time	Before oxidation: Air dry weight	Before oxidation: Moisture	Before oxidation: Oven dry weight	After oxidation: Air dry weight	After oxidation: Moisture	After oxidation: Oven dry weight	Per cent loss
5 grams available chlorine per liter; temperature 25 deg.								
Muslin	0.25	15.002	3.5	14.477	15.038	3.2	14.557	+0.55
	1.0	15.065	3.5	14.538	15.273	4.7	14.555	+0.12
	2.5	15.025	3.5	14.499	15.205	4.8	14.475	—0.16
Thirds and blues	0.25	15.003	4.3	14.358	14.755	3.0	14.312	—0.32
	1.0	15.012	4.3	14.366	14.938	4.6	14.251	0.80
	2.5	15.009	4.3	14.364	14.944	4.6	14.257	0.74
Alpha 5285	0.25	15.011	3.5	14.486	15.002	4.3	14.357	—0.89
	1.0	15.022	3.5	14.496	15.208	5.3	14.402	0.64
	2.5	15.029	3.5	14.503	15.179	5.4	14.359	0.99
AC Alpha	0.25	15.021	4.1	14.405	14.605	4.5	14.948	+3.77
	1.0	15.003	4.1	14.388	14.862	5.5	14.045	—2.38
	2.5	15.022	4.1	14.406	14.845	5.3	14.058	2.41
Bleached sulphite	0.25	15.000	4.2	14.370	14.465	4.6	13.800	—3.90
	1.0	15.051	4.2	14.419	14.659	5.8	13.809	4.23
	2.5	15.011	4.2	14.381	14.654	5.8	13.804	4.0
10 grams available chlorine per liter; temperature 25 deg.								
Muslin	0.25	15.043	3.5	14.516	15.255	4.6	14.547	+0.21
	1.0	15.026	3.5	14.5	15.148	4.3	14.497	—0.02
	2.5	15.013	3.5	14.488	15.107	4.5	14.427	0.42
Thirds and blues	0.25	15.001	4.3	14.356	14.919	4.4	14.263	—0.64
	1.0	15.008	4.3	14.363	14.904	4.2	14.278	0.59
	2.5	15.015	4.3	14.369	14.875	4.3	14.235	0.93
Alpha 5285	0.25	15.036	3.5	14.510	15.205	5.1	14.430	—0.55
	1.0	15.006	3.5	14.481	15.106	4.8	14.381	0.69
	2.5	15.024	3.5	14.498	15.013	4.9	14.277	1.52
AC Alpha	0.25	15.005	4.1	14.390	14.821	5.0	14.080	—2.15
	1.0	15.001	4.1	14.386	14.798	4.8	14.088	1.93
	2.5	15.037	4.1	14.420	14.772	4.9	14.033	2.68
Bleached sulphite	0.25	15.036	4.2	14.404	14.593	5.2	13.834	—3.95
	1.0	15.020	4.2	14.389	14.664	5.4	13.872	3.58
	2.5	15.002	4.2	14.372	14.550	5.2	13.793	4.02

pulp pads and undoubtedly the moisture content of the air-dry pulps was not always exactly the same as the moisture content of the pads in the bottle as determined after the moisture content had reached equilibrium.

It will be seen from a study of the data that the stocks may be arranged in order of their increasing solution rates, as follows: muslin, thirds and blues and Alpha 5285, AC Alpha, and finally, bleached sulphite. Whether this difference in solution rate is due to the fact that a difference in actual oxidation rates exists between the stocks, or that because of a difference in composition of the original stocks different oxidation products are formed which products differ in their solubilities, it is not possible to state.

B. Changes in α-, β- and γ-Cellulose.

The changes in α-, β- and γ-cellulose contents are outlined in Table V and graphically illustrated in Figs. 1 and 2.

The data are extremely interesting, pointing as they do, that the loss in α-cellulose content is relatively slow at 25 degrees. Preliminary runs on the β- and γ-cellulose content changes at the same temperature suggest only slight changes in these values and so further determinations were not carried out.

The data obtained from the series run at 37.5 degrees

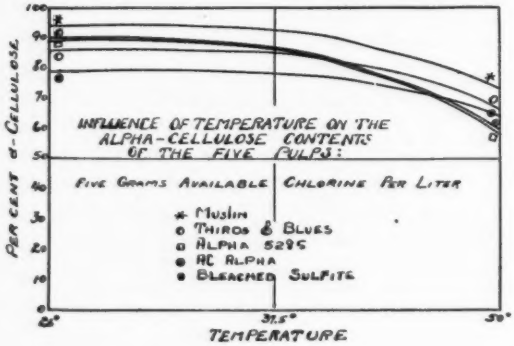

FIG. 3

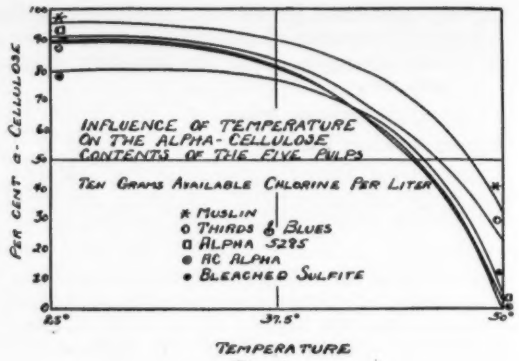

FIG. 4

and summarized with the corresponding runs at 25 and 50 degrees are presented in Table VI. It is apparent that the change in α-cellulose content at this temperature

TABLE III
LOSS IN WEIGHT ON OXIDATION OF PULPS WITH CALCIUM HYPOCHLORITE SOLUTION AT A CONSISTENCY OF FIVE PER CENT

Sample	Time	Before oxidation: Air dry weight	Before oxidation: Moisture	Before oxidation: Oven dry weight	After oxidation: Air dry weight	After oxidation: Moisture	After oxidation: Oven dry weight	Per cent loss
5 grams available chlorine per liter; temperature 50 deg.								
Muslin	0.25	15.002	3.5	14.477	15.038	3.8	14.431	—0.31
	1.0	15.005	3.5	14.480	14.813	3.6	14.280	1.38
	2.5	15.044	3.5	14.517	14.689	3.6	14.160	2.45
	5.0	15.059	3.5	14.532	14.298	3.8	13.755	5.34
Thirds and blues	0.25	15.011	4.3	14.366	14.800	3.9	14.223	0.99
	1.0	15.033	4.3	14.387	14.674	3.4	14.175	1.45
	2.5	15.002	4.3	14.357	14.311	3.7	13.781	4.01
	5.0	15.069	4.3	14.421	14.011	4.0	13.451	6.73
Alpha 5285	0.25	15.028	3.5	14.502	14.965	4.0	14.366	0.94
	1.0	15.022	3.5	14.496	14.841	4.1	14.233	1.79
	2.5	15.029	3.5	14.503	14.512	4.7	13.83	4.64
	5.0	15.092	3.5	14.564	14.236	4.5	13.605	6.58
AC Alpha	0.25	15.022	4.1	14.406	14.609	4.1	14.010	2.74
	1.0	15.026	4.1	14.410	14.649	4.2	14.034	2.60
	2.5	15.020	4.1	14.404	14.059	4.3	13.454	6.59
	5.0	15.027	4.1	14.411	14.168	5.0	13.460	6.59
Bleached sulphite	0.25	15.024	4.2	14.393	14.512	4.3	13.888	3.44
	1.0	15.006	4.2	14.376	14.422	4.8	13.730	4.49
	2.5	15.015	4.2	14.384	13.994	4.6	13.350	7.19
	5.0	15.008	4.2	14.378	13.874	5.1	13.167	8.42
10 grams available chlorine per liter; temperature 50 deg.								
Muslin	0.25	15.071	3.5	14.544	15.057	4.2	14.425	0.81
	1.0	15.005	3.5	14.480	14.717	4.1	14.114	2.54
	2.5	10.018	3.5	9.667	9.228	5.4	8.730	9.69
	5.0	10.032	3.5	9.681	9.205	5.2	8.726	9.86
Thirds and blues	0.25	10.018	4.3	9.682	9.837	4.2	9.425	2.65
	1.0	15.010	4.3	14.365	14.484	4.4	13.847	3.61
	2.5	10.020	4.3	9.589	8.914	4.9	8.477	11.59
	5.0	10.023	4.3	9.592	8.830	5.6	8.336	13.10
Alpha 5285	0.25	15.043	3.5	14.517	14.983	4.5	14.309	1.43
	1.0	15.017	3.5	14.491	14.645	4.4	14.001	3.39
	2.5	10.004	3.5	9.654	9.030	6.1	8.479	12.17
	5.0	10.006	3.5	9.656	9.078	6.4	8.497	12.00
AC Alpha	0.25	10.030	4.1	9.619	9.830	4.9	9.348	2.81
	1.0	15.005	4.1	14.390	14.380	4.5	13.733	4.55
	2.5	10.018	4.1	9.607	8.905	6.4	8.335	13.24
	5.0	10.024	4.1	9.613	8.912	6.6	8.324	13.41
Bleached sulphite	0.25	10.023	4.2	9.602	9.652	4.9	9.179	4.41
	1.0	15.017	4.2	14.386	13.844	5.1	13.139	8.66
	2.5	10.016	4.2	9.595	8.928	6.7	8.330	13.20
	5.0	10.035	4.2	9.613	8.956	6.9	8.338	13.26

TABLE IV
LOSS IN WEIGHT ON TREATMENT WITH CALCIUM HYPOCHLORITE SOLUTION FOR ONE HOUR AT 37.5 DEGREES AT A CONSISTENCY OF 5 PER CENT

Sample	Before oxidation: Air dry weight	Before oxidation: Moisture	Before oxidation: Oven dry weight	After oxidation: Air dry weight	After oxidation: Moisture	After oxidation: Oven dry weight	Per cent loss
5 grams available chlorine per liter							
Muslin	15.041	3.5	14.515	14.935	4.3	14.293	1.53
Thirds and blues	15.058	4.3	14.411	14.859	4.0	14.265	1.01
Alpha 5285	15.053	3.5	14.526	15.082	4.7	14.373	1.05
AC Alpha	15.038	4.1	14.421	15.006	4.5	14.331	0.62
Bleached sulphite	15.042	4.2	14.411	14.712	4.9	13.991	2.91
10 grams available chlorine per liter							
Muslin	15.039	3.5	14.513	14.850	4.0	14.256	1.77
Thirds and blues	15.018	4.3	14.372	14.809	4.1	14.202	1.18
Alpha 5285	15.034	3.5	14.508	15.020	4.6	14.329	1.23
AC Alpha	15.037	4.1	14.420	15.003	4.8	14.283	0.95
Bleached sulphite	15.052	4.2	14.420	14.622	4.9	13.905	3.56

TABLE V
CHANGES IN α, β- AND γ-CELLULOSE CONTENTS WITH INCREASING TIMES OF OXIDATION

		Five grams available chlorine per liter				Ten grams available chlorine per liter			
		25 deg.	50 deg.			25 deg.	50 deg.		
Sample	Time	α-	α-	β-	γ-	α-	α-	β-	γ-
Muslin	0.0	97.1	97.1	2.2	0.0	97.1	97.1	2.2	0.0
	0.25	96.3	94.7	2.8	1.8	95.4	92.6	6.6	2.6
	1.0	94.8	74.3	29.3	.5	94.8	34.2	55.8	5.1
	2.5	93.9	28.6	63.7	3.3	91.7	6.3	71.7	12.9
	5.0	...	22.9	68.1	3.1	...	4.1	71.9	13.8
Thirds and blues	0.0	91.5	91.5	8.4	1.0	91.5	91.5	8.4	1.0
	0.25	90.7	90.8	7.0	2.8	90.6	83.5	13.9	4.1
	1.0	86.5	67.8	28.4	2.8	88.0	25.5	63.7	3.3
	2.5	87.2	9.0	84.1	5.1	82.1	9.6	67.8	13.8
	5.0	...	5.8	86.3	6.8	...	8.6	71.5	11.5
Alpha 5285	0.0	92.1	92.1	4.7	3.2	92.1	92.1	4.7	3.2
	0.25	89.8	87.8	7.4	4.7	90.8	89.2	5.3	7.8
	1.0	89.5	62.4	27.4	7.0	91.1	2.8	79.9	8.0
	2.5	87.8	3.6	80.9	9.3	86.4	10.5	71.1	13.8
	5.0	...	.3	90.0	7.8	...	12.3	67.4	16.1
AC Alpha	0.0	90.5	90.5	2.5	4.4	90.5	90.5	2.5	4.4
	0.25	88.9	86.4	9.3	4.2	88.1	85.2	8.7	9.5
	1.0	90.0	65.3	37.0	6.0	88.5	2.8	79.5	9.8
	2.5	87.3	2.8	77.2	9.3	85.4	10.4	65.1	17.5
	5.0	...	2.3	81.2	11.4	...	17.6	46.8	18.0
Bleached sulphite	0.0	79.5	79.5	8.3	9.4	79.5	79.5	8.3	9.3
	0.25	80.4	78.1	4.6	11.7	81.0	72.8	17.9	13.4
	1.0	78.8	63.0	23.4	15.6	77.0	5.8	74.4	10.2
	2.5	77.2	4.0	47.8	14.4	73.9	17.2	61.8	17.5
	5.0	...	36.5	45.2	12.5	...	21.7	46.0	18.4

TABLE VI
EFFECT OF A VARIATION IN TEMPERATURE ON THE α-CELLULOSE CONTENT OF PULPS OXIDIZED WITH CALCIUM HYPOCHLORITE SOLUTIONS
Time = 1 hour
(Expressed in per cent)

	Five grams available chlorine per liter			Ten grams available chlorine per liter		
Stock	25 deg.	37.5 deg.	50 deg.	25 deg.	37.5 deg.	50 deg.
Muslin	94.8	93.6	74.3	94.8	88.3	34.2
Thirds and blues	86.5	85.8	67.8	88.0	80.0	25.5
Alpha 5285	89.5	88.8	62.4	91.1	82.2	2.8
AC Alpha	90.0	87.9	65.3	88.5	82.3	2.8
Bleached sulphite	78.8	78.9	63.0	77.0	76.4	5.8

is closely related to the concentration of available bleach solution; where the chlorine concentration is doubled, the loss in α-cellulose is approximately double or better.

The results obtained at 50 degrees indicate a fundamental difference in behavior between the rag stocks and wood pulps. In both cases with 5 grams of available chlorine per liter, the α-cellulose content falls away rapidly, the change occurring in the Alpha pulps being somewhat more rapid than with the rag stocks. The bleached sulphite goes down to a minimum α-cellulose content and then with continued treatment, rises. The β-cellulose values increase at a corresponding rate while the γ-cellulose values go up but slowly. With 10 grams of available chlorine per liter, the oxidation is more drastic and while all the stocks lose their α-cellulose contents rapidly, all the wood pulps are modified with increased oxidation so as to form from the β-cellulose modified alkali-insoluble products, thus increasing the apparent α-cellulose content. This is done at the expense of the β-cellulose as is shown by a glance at Fig. 2. The rag stocks, on the other hand, do not show this change, but come to values for α- and β-cellulose which approach constant values. Under these conditions, the γ-cellulose formed is very much greater than with the lower chlorine concentration.

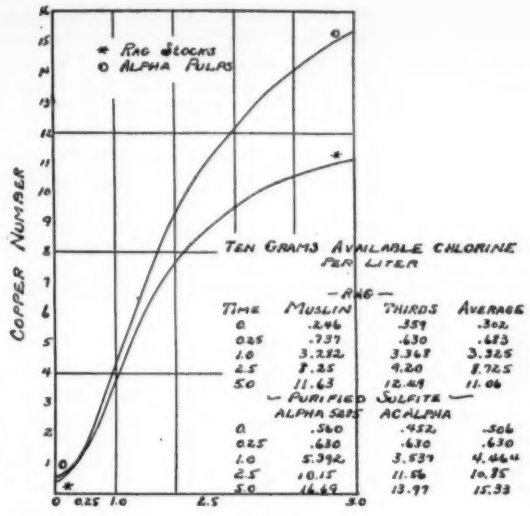

FIG. 5
Effect of a variation in time on the average copper numbers of rag and purified sulphite pulps.

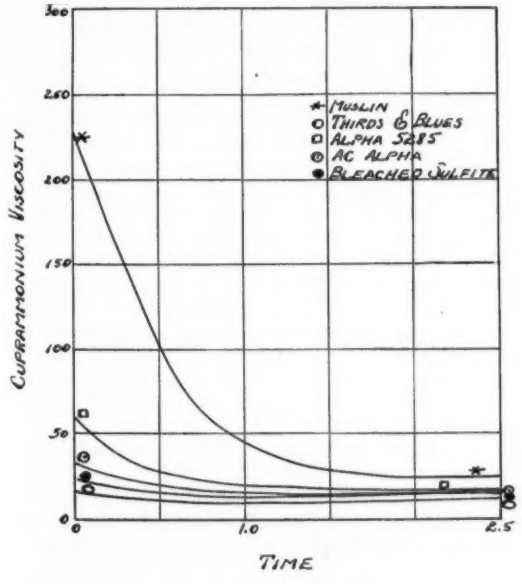

FIG. 6
Effect of variations in time on the cuprammonium viscosities of stocks oxidized with calcium hypochlorite solution, temperature 25 deg. Five grams available chlorine per liter.

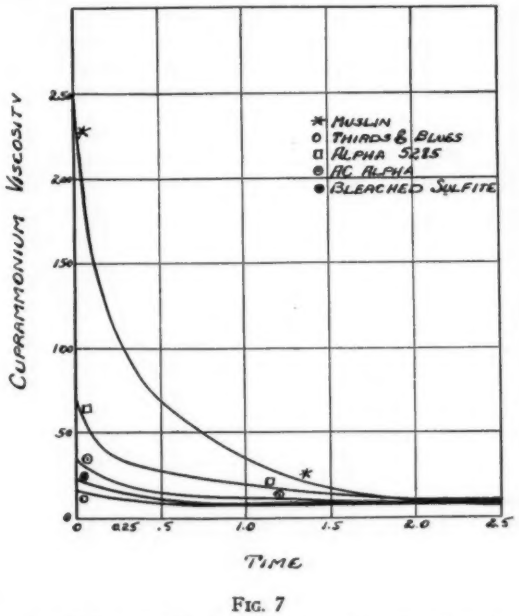

FIG. 7
Effects of variations in time on the cuprammonium viscosities of stocks oxidized with calcium hypochlorite solution, temperature 25 deg. Ten grams available chlorine per liter.

It should be noted here that the analytical methods involved in the determination of β- and γ-cellulose are largely empirical. They are based by definition upon the amount of organic material soluble in 17.5 per cent sodium hydroxide and either soluble or insoluble in dilute, neutral or slightly acid solution; actual measure of this amount is carried out volumetrically, employing an excess of potassium dichromate-sulphuric acid solution and back titrating for excess dichromate. The actual percentages cannot be translated into weight values as they are derived from a potassium dichromate solution calibrated against highly purified cellulose. No attempt is made to tie these fractions with the β- and γ-oxy-celluloses described in the literature.

C. Changes in Copper Number.

The copper numbers of the various oxidized stocks have been grouped together in Table VII. The values of the stocks which have been treated at 25 degrees are only slightly different than those of the original pulps. At 50 degrees, on the other hand, the copper numbers increase rapidly and an increase in the concentration of available chlorine increases very considerably the copper number of the oxidation product. The copper numbers of the rag stocks and Alpha pulp for the series carried on at 50 degrees with 10 grams of available chlorine per liter have been averaged and the data is given graphically in Fig. 5. Here again appears a difference in behavior of the rag and Alpha pulp, for the rag pulps are increasing their copper numbers at a somewhat slower rate than the purified wood pulps. This bears out earlier unpublished observations made in the laboratories of the Institute of Paper Chemistry.

D. Changes in Cuprammonium Viscosity.

Changes in cuprammonium viscosity were followed at 25 degrees and the data have been accumulated in Table VIII and are shown in Figs. 6 and 7. With 5 grams of available chlorine, the rate of lowering of viscosity is fairly rapid, although the muslin stock may be allowed to react with strong oxidizing solution for approximately ¾ hours before its viscosity reaches the viscosity of the original Alpha 5285. The rate of degradation is much more rapid when the available chlorine content is doubled. A glance at the table will indicate the more desirable colloidal characteristics of the Muslin, the intermediate behavior of the Alpha pulps, and the less desirable colloidal behavior of the thirds and blues and bleached sulphite pulp.

Summary

On the basis of the data presented in this paper, it is possible to summarize rather briefly the results:

1. The greater stability of number 1 muslin stock in withstanding degradation by solutions of calcium hypochlorite containing 5 and 10 grams of available chlorine per liter, respectively, at temperatures of 25 and 50 degrees, is indicated by the slower rate at which the muslin stock is dissolved by the oxidizing solutions.

2. A fundamental difference in the nature of the rag stocks and wood pulps investigated may be inferred from the fact that the data and figures at 50 degrees with 10 grams of available chlorine per liter point to a primary rapid loss in α-cellulose content and a corresponding increase in β-cellulose content for both the rag stocks and wood pulps; in the wood pulps, some portion of the β-cellulose thus formed from the α-cellulose is further modified on continued oxidation so as to become somewhat less soluble in the 17.5 per cent caustic solution. This phenomenon is not noted in the case of the rag stocks.

3. The number 1 muslin, because of its higher original cuprammonium viscosity, retains for longer periods of time against degradation by oxidation desirable characteristics possessed by it and measured by viscosity than do stocks of lower original cuprammonium viscosity.

TABLE VII
EFFECT OF A VARIATION IN TIME ON THE COPPER NUMBER OF PULPS OXIDIZED WITH CALCIUM HYPOCHLORITE SOLUTION

		Five grams available chlorine per liter		Ten grams available chlorine per liter	
Stock	Time	25 deg.	50 deg.	25 deg.	50 deg.
Muslin	0.0	.246	.246	.246	.246
	0.25	.141	.41	.143	.737
	1.0	.185	1.766	.263	3.282
	2.5	.323	4.496	.526	8.25
	5.0	....	5.30	....	11.63
Thirds and blues	0.0	.359	.359	.359	.359
	0.25	.293	.416	.215	.631
	1.0	.263	1.557	.344	3.368
	2.5	.382	3.711	.371	9.20
	5.0	....	7.295	....	12.49
Alpha 5285	0.0	.560	.560	.560	.560
	0.25	.331	.473	.311	.631
	1.0	.313	1.489	.406	5.392
	2.5	.362	6.878	.384	10.15
	5.0	....	7.713	....	16.69
AC Alpha	0.0	.452	.452	.452	.452
	0.25	.262	.475	.289	.636
	1.0	.265	1.190	.429	3.537
	2.5	.349	7.54	.348	11.56
	5.0	....	11.50	....	13.97
Bleached sulphite	0.0	1.83	1.83	1.83	1.83
	0.25	1.337	1.061	1.851	1.231
	1.0	1.595	1.674	1.056	7.219
	2.5	1.136	4.74	1.105	10.72
	5.0	....	9.56	....	10.54

TABLE VIII
EFFECT OF VARIATIONS IN TIME ON THE CUPRAMMONIUM VISCOSITY OF STOCKS OXIDIZED WITH CALCIUM HYPOCHLORITE SOLUTIONS
(Expressed in Centipoises)

		Viscosity in centipoises	
Sample	Time hours	Five grams available chlorine per liter at 25 deg.	Ten grams available chlorine per liter at 25 deg.
Muslin	0.0	240.0	240.0
	0.25	154.0	92.2
	1.0	42.0	32.0
	2.5	23.6	9.8
Thirds and blues	0.0	17.0	17.0
	0.25	15.0	15.3
	1.0	12.3	9.0
	2.5	10.9	7.3
Alpha 5285	0.0	65.0	65.0
	0.25	37.2	29.9
	1.0	24.5	25.4
	2.5	16.3	10.4
AC Alpha	0.0	34.4	34.4
	0.25	27.5	19.9
	1.0	19.8	13.0
	2.5	14.2	9.4
Bleached sulphite	0.0	23.0	23.0
	0.25	16.5	18.1
	1.0	14.3	12.0
	2.5	11.5	10.3

Writing Inks Destructive to Papers

As a part of its work on decreasing hazards to valuable records, the Bureau of Standards has obtained evidences that the different types of iron tannate writing inks commonly used are harmful to papers.

Seven different kinds of writing papers were inked with three different inks of this kind made with the various combinations of chemicals commonly employed. The inked papers were then heated to accelerate any chemical reactions that might occur and their loss of strength was compared with that of the uninked papers. An ink containing hydrochloric acid and one containing sulphuric acid, both without gum arabic, caused pronounced weakening of the papers. The retention of folding endurance of the papers under the heat treatment was decreased by these inks 20 to 40 per cent. Addition of gum arabic to the sulphuric acid ink decreased its destructive effect somewhat.

Specimens of one paper were treated with solutions of the various components of the standard writing ink singly and in combination with each other. The concentration of the various solutions was the same as that in the ink. Test data on the specimens after the heat test indicate that the most pronounced deteriorative effect is exerted by the solution containing tannic acid, gallic acid, hydrochloric acid and ferrous sulphate. The effect of this solution was approached by solutions containing ferrous sulphate and hydrochloric acid, ferrous sulphate alone, and hydrochloric acid alone.

IMPORTS OF PAPER AND PAPER STOCK

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING MAY 6, 1933

CIGARETTE PAPER

American Tobacco Co., Amer. Importer, Havre, 100 cs.; Standard Products Corp., Amer. Importer, Havre, 44 cs.; Liggett & Myers Tobacco Co., Amer. Importer, Havre, 25 cs.; De Manduit Paper Corp., Amer. Importer, Havre, 221 cs.; American Tobacco Co., Lafayette, Havre, 150 cs.; Champagne Paper Corp., Lafayette, Havre, 10 cs.; Champagne Paper Corp., Pr. Harding, Havre, 55 cs.; American Tobacco Co., Pr. Harding, Havre, 50 cs.

WALL PAPER

Whiting & Patterson Co., Franconia, Southampton, 6 bls.; Globe Shipping Co., Deutschland, Hamburg, 4 bls.; ——, Deutschland, Hamburg, 4 cs.

PAPER HANGINGS

W. H. S. Lloyd & Co., Britannic, Liverpool, 3 bls.

PAINTED PAPER

Hudson F'd'g & Shipping Co., Lafayette, Havre, 2 cs.

NEWS PRINT

Newark Evening News, Donnacona II, Quebec, 567 rolls; W. H. Beal, Markland, Liverpool, N. S., 3175 rolls; Perkins Goodwin & Co., Dresden, Bremen, 386 rolls; Jay Madden Corp., Dresden, Bremen, 187 rolls; ——, Bergensfjord, Oslo, 217 rolls; Gilman Paper Co., Bergensfjord, Oslo, 75 rolls; Natl Paper & Type Co., Bergensfjord, Oslo, 26 rolls; Parsons & Whittemore, Inc., Kungsholm, Gothenburg, 301 rolls; Manufacturers Trust Co., Kungsholm, Gothenburg, 216 rolls; ——, Scanstates, Kotka, 261 rolls; Jay Madden Corp., Scanstates, Kotka, 60 rolls; Parsons & Whittemore, Inc., Scanstates, Stockholm, 137 rolls; Gilman Paper Co., Scanstates, Kotka, 170 rolls; Baldwin Paper Co., Deutschland, Hamburg, 119 rolls.

PRINTING PAPER

International F'd'g Co., H. Jaspar, Antwerp, 5 cs.; C. Steiner, Dresden, Bremen, 21 cs.; E. Dietzgen & Co., Volendam, Rotterdam, 37 cs.; International F'd'g Co., Volendam, Rotterdam, 2 cs.; Jay Madden Corp., Scanstates, Kotka, 66 rolls, 49 bls.

WRAPPING PAPER

E. Dietzgen & Co., Black Eagle, Rotterdam, 20 cs.; Yardley & Co., Amer. Farmer, London, 9 cs.

FILTER PAPER

H. Reeve Angel & Co. Inc., Franconia, Southampton, 3 cs.; H. Reeve Angel & Co. Inc., Majestic, Southampton, 6 cs.

FILTER MASS

J. Manheimer, Black Eagle, Rotterdam, 50 bls.; H. Reeve Angel & Co. Inc., Westernland, Antwerp, 24 bls.; A. Giese & Son, Deutschland, Hamburg, 30 bls.

SURFACE COATED PAPER

P. C. Zuhlke, Westernland, Antwerp, 11 cs.; Gevaert Co. of America, Westernland, Antwerp, 26 cs.; P. Beiersdorf Co. Inc., Deutschland, Hamburg, 29 cs.; International F'd'g Co., Deutschland, Hamburg, 1 cs.

METAL COATED PAPER

Globe Shipping Co., Bremen, Bremen, 30 cs.; Globe Shipping Co., Dresden, Bremen, 50 cs.; Hensel Bruckman & Lorbacher, Dresden, Bremen, 32 cs.; National City Bank, Dresden, Bremen, 16 cs.

COATED PAPER

Chas. Happel, Deutschland, Hamburg, 3 cs.

BASIC PAPER

P. Puttman, Westernland, Antwerp, 18 cs.

PHOTO PAPER

J. J. Gavin, Majestic, Southampton, 4 cs.

DECALCOMANIA PAPER

B. F. Drakenfeld & Co., Britannic, Liverpool, 20 cs. (duplex); Sellers Transportation Co., Bremen, Bremen, 12 cs.

TISSUE

W. J. Byrnes & Co., Majestic, Southampton, 5 cs.; W. J. Byrnes & Co., Aquitania, Southampton, 2 cs.; ——, Excalibur, Genoa, 1 cs.

SILK PAPER

Van Oppen & Co., Excalibur, Marseilles, 17 cs.

STRAW BOARDS

Crown Paper-Box Co., Volendam, Rotterdam, 400 pkgs.; H. Fuchs & Son, Volendam, Rotterdam, 12 bls.; Peerless Paper-Box Co., Volendam, Rotterdam 400 pkgs.

MISCELLANEOUS

Corn Exchange Bank, Belfast Maru, Kobe, 75 cs.; Keller Dorian Paper Co., Franconia, Southampton, 2 cs.; Keller Dorian Paper Co., Lafayette, Havre, 5 cs.; Walker Goulard Plehn Co., Volendam, Rotterdam, 13 bls.; M. M. Cohen, Kungsholm, Gothenburg, 31 bls.; Kraemer & Co., Kungsholm, Gothenburg, 240 bls., 6 rolls; Parsons & Whittemore, Inc., Kungsholm, Gothenburg, 2 rolls; The Borregaard Co. Inc., Kungsholm, Gothenburg, 40 bls., 537 rolls; E. H. Sargent & Co., Kungsholm, Gothenburg,

6 cs.; E. Dietzgen & Co., L. A. Christensen, Marseilles, 7 cs.; Remington Rand, Inc., Deutschland, Hamburg, 9 cs.; Wedeman Godknecht & Lally, Deutschland, Hamburg, 14 cs.

RAGS, BAGGINGS, ETC.

Amderutra, Pr. Harding, Hamburg, 96 bls. rags; E. J. Keller Co. Inc., Cameronia, ——, 28 bls. rags; E. J. Keller Co. Inc., Black Heron, — —,90 bls. bagging.

OLD ROPE

Banco Coml Italiane Trust Co., Amer. Farmer, London, 72 bls.; W. Steck & Co., Volendam, Rotterdam, 151 coils; International Purchasing Co., Excalibur, Genoa, 178 coils.

GLUE STOCK, ETC.

——, Dresden, Bremen, 150 bags, hide glue; ——, Deutschland, Hamburg, 50 bags hide glue.

CASEIN

D. C. Andrews & Co., Deutschland, Hamburg, 60 bags.

WOOD PULP

J. Andersen & Co., Bergensfjord, Sarpsborg, 180 bls. sulphite; J. Andersen & Co., Bergensfjord, Oslo, 2750 bls. sulphite; A. Giese & Son, Volendam, Rotterdam, 72 bls. wood pulp; J. Manheimer, Volendam, Rotterdam, 50 bls. wood pulp; Perkins Goodwin & Co., Kungsholm, Gothenburg, 508 bls. kraft pulp, 127 bls. sulphate; Johaneson Wales & Sparre, Inc., Kungsholm, Gothenburg, 779 bls. sulphite, 750 bls. sulphate; E. M. Sergeant & Co., Kungsholm, Gothenburg, 896 bls. kraft soda pulp; Pagel Horton & Co., Inc., Kungsholm, Gothenburg, 1277 bls. sulphite; Price & Pierce Ltd., Kungsholm, Gothenburg, 250 bls. sulphite; Atterbury Bros. Inc., Scanstates, Stockholm, 400 bls. sulphite, 50 tons; Johaneson Wales & Sparre, Inc., Scanstates, Gdynia, 336 bls. wood pulp, 50 tons; Castle & Overton, Inc., Deutschland, Hamburg, 420 bls. wood pulp, 84 tons.

WOOD PULP BOARDS

Lagerloef Trading Co., Amer. Importer, Hamburg, 27 bls., 5 tons.

PHILADELPHIA IMPORTS

WEEK ENDING MAY 6, 1933

——, Scanstates, Kotka, 5238 bls. sulphite, 1047 tons; Lagerloef Trading Co., Scanstates, Kotka, 135 bls. sulphite, 27 tons, 135 bls. sulphate, 27 tons, 644 rolls wood pulp boards, 72 tons; ——, Scanstates, Kotka, 101 rolls news print; ——, Markland, Liverpool, N. S., 2955 rolls news print; Parsons & Whittemore, Inc., Vardefjell, ——, 6000 bls. wood pulp.

BOSTON IMPORTS

WEEK ENDING MAY 6, 1933

Parsons & Whittemore, Inc., Vardefjell, ——, 10,000 bls. wood pulp; E. J. Keller Co. Inc., Capulin, ——, 336 bls. wood pulp.

NEW ORLEANS IMPORTS

WEEK ENDING MAY 6, 1933

Parsons & Whittemore, Inc., Haimon, ——, 250 bls. sulphite; Parsons & Whittemore, Inc., Cranford, ——, 250 bls. sulphite.

Dard Hunter in Japan

Dard Hunter, the well-known hand-made paper expert, returned to Tokyo on April 17 after a 1500 mile tour of the three leading hand-made paper districts in Japan—Takefu, Gifu and Kochi. With his guide, Mr. Yamada, Mr. Hunter visited approximately one hundred mills altogether and saw every form of Japanese paper being made. He also inspected a number of machine mills belonging to the Oji Company and was much impressed with them, especially the cigarette paper mill at Osaka.

Mr. Hunter was entertained royally during his trip and was the guest of honor at many dinners. He met many hundreds of men connected with the paper industry in Japan. Y. Fukukita, of the Oji Company, did everything possible for the comfort and enlightment of Mr. Hunter and his sojourn in Japan proved most delightful and most profitable.

Following his stay in Japan, Mr. Hunter left for Korea, where the old methods of paper making are still in use. He visited Seoul (Kijo) and proceeded to various paper making centers from there.

Mr. Hunter expects to return to New York by way of Celebes, Borneo, Bali, Java, Sumatra, etc., arriving in America in the mid-Summer.

Cost and Technical Men Meet

[FROM OUR REGULAR CORRESPONDENT]

KALAMAZOO, Mich., May 8, 1933.—Members of the Kalamazoo valley division of the Paper Mill Cost and Technical Association of America at their monthly meeting at the Columbia Hotel here heard Arthur Strong, of the W. A. Jones Foundry and Machine Company, Chicago, explain "Anti-Friction Bearings in the Paper Industry." Slides were used to illustrate the talk. F. L. Brown, assistant secretary of the Michigan Paper Company, Plainwell, addressed the 20 members present on "Plotting and Budgeting Future Sales Costs." Harry C. Bradford, vice-president of the Rex Paper Company, is president of the cost and technical association in Kalamazoo.

Monarch Mill Damaged by Storm

KALAMAZOO, Mich., May 8, 1933.—April roared out of 1933 and played hob with the Monarch Paper Company's plant here last week. After the storm of rain, wind and rapid flashes of lightning spent itself lightning had demolished one end of the one-story paper sorting division and the wind helped the havoc by tearing out about 20 feet of the sidewall and a portion of the roof. Work was suspended Monday, but was resumed later in the week. This freak storm caused fire and windstorm damage to the extent of several thousand dollars in Kalamazoo. The loss to the Monarch was not officially estimated.

Sandy Hill Iron Works Elects Officers

A. J. Kennedy was re-elected president of the Sandy Hill Iron and Brass Works at the annual meeting conducted May 1 at the office of the corporation, 27 Allen street, Hudson Falls, N. Y. Dr. Richard C. Tefft, Jr., of Boston, was named as vice-president, and W. J. Elliot Simpson was elected secretary and treasurer. Harry L. Broughton and Chas. W. Kellogg, together with the above named officers, were named as directors for the ensuing year.

Superintendents to Meet at Asheville

The Southeastern Division of the American Pulp and Paper Mill Superintendents Association will hold its Spring Meeting in Asheville, N. C., on Friday and Saturday, May 12 and 13.

New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, May 10, 1933.

Conditions in the local paper market continue to improve. Demand for the various standard grades of paper is persistent. Inquiries for future account are numerous. Sales forces of the leading paper organizations are generally expressing optimism. The price situation is firmer, due to some extent to the advance in quotations of raw materials.

No radical changes were reported in the news print paper market. Production in the United States, Canada and Newfoundland is being maintained in sufficient volume to take care of current requirements. Efforts to stabilize the industry are still being made by the leading manufacturers, although progress is slow.

The position of the paper board market is practically unchanged. Demand for box board is fairly active and prices are well maintained. The fine paper market is exhibiting a stronger undertone. Tissues are moving in good volume. The coarse paper market is fairly steady. Summer specialties are in seasonal request.

Mechanical Pulp

Some improvement was noticed in the ground wood pulp market. Demand for both domestic and imported mechanical pulp is better. Prices are firmer. No. 1 imported moist ground wood pulp is now quoted at from $19 to $21 per ton, on dock, Atlantic ports. Quotations on other grades are generally holding to previously recorded levels.

Chemical Pulp

The chemical pulp market was more active during the past week than for some time past. Prices are decidedly firmer. Imported bleached sulphite is now quoted at from $1.90 to $2.40; No. 1 strong unbleached at from $1.50 to $1.65; and No. 2 strong unbleached at from $1.35 to $1.40, all on dock, Atlantic ports.

Old Rope and Bagging

Greater strength prevails in the old rope market. Demand for both domestic and imported old manila rope is satisfactory. Prices have advanced. Foreign manila rope is now quoted at from $1.60 to $1.70, and domestic manila rope at from $1.60 to $1.75. The bagging market is firmer. Gunny and scrap are moving freely. Roofing bagging is seasonally active.

Rags

Due mainly to the depreciation of the dollar in the foreign exchange market, quotations on practically all imported rags have advanced materially. The domestic rug market is fairly steady. Cotton cuttings are moving in satisfactory volume. Some inquiries are being received from abroad on certain grades. Roofing rags are in better demand.

Waste Paper

The board mills are displaying more interest in the lower grades of paper stock. Demand for No. 1 mixed paper is somewhat stronger than of late. Prices are generally holding to formerly quoted levels. The better grades continue steady, especially hard and soft white shavings. Prices have been to a great extent well maintained in most instances.

Twine

Demand for the various grades of twine is fairly active. Supplies are moving into consumption at a steady pace for the time of year and the outlook for the future is considered bright, in some quarters. Due to the advance in the price of cotton, quotations are firmer, despite the usual keen competition for desirable orders.

Wilkinson-Grey Co. Moves

The Wilkinson-Grey Company has leased the entire lower part of the building at 228-238 East 44th street, New York. When H. J. Grey took over the firm of Wilkinson Bros. & Co., he moved the concern to 419 Broome street. It was experienced, however, in the past three years that these premises were no longer large enough for the volume of business transacted, and the executive offices are accordingly being removed to the new location, where the concern will have approximately 30,000 square feet, most of it on the street floor, which is a considerable advantage. In announcing the removal, H. J. Grey, head of the Wilkinson-Grey Company, said:

"In the three years, we have tripled our volume and business and are operating with a force of sixty people and have, in that time, taken on a fleet of Mack Trucks for our deliveries.

"Throughout this time, we have not made a single reduction in salaries, nor have we dispensed with the services of any in our organization. This latter achievement is the most gratifying of the entire accomplishment. Every member of our organization, has, unstintingly given of their very best. The members' efforts and cooperation have produced the results outlined.

"Without this cooperation and the untiring zeal of every member of our staff and the progressive efforts of each and every one of our salesmen building a business in the last three years of three times the volume that it enjoyed in 1930, would never have been possible, particularly, considering the conditions with which we have been confronted during that period. During this time, the number of our clients has been almost doubled. Everyone in the organization, whether in a salesman's capacity or not, has become sales-minded and a very great many of our sales can be traced to the non-selling part of this organization. They have all done a swell selling job and this year is expected to exceed all previous years in the volume of wrapping commodities distributed. They have certainly earned the reputation of being the largest distributors of wrapping commodities in the East."

Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, May 10, 1933.

BLANC FIXE.—The position of the blanc fixe market is practically unchanged. Prices are holding to schedule. The pulp is quoted at from $42.50 to $45.00 per ton, in bulk; while the powder is selling at from 3 to 3½ cents per pound, in barrels, at works.

BLEACHING POWDER.—Steadiness prevails in the bleaching powder market. Contract shipments are moving in fairly good volume. Prices remain unchanged. Bleaching powder is quoted at from $1.75 to $2.00 per 100 pounds, in drums, at works.

CASEIN.—The casein market is firmer. Domestic standard ground is quoted at 8½ to 8¾ cents and finely ground at 9½ to 10½ cents per pound. Argentine standard ground is selling at 9⅞ cents and finely ground at 10½ cents per pound, all in bags, car lot quantities.

CAUSTIC SODA.—Demand for caustic soda is moderately active. The contract movement is fairly heavy. Solid caustic soda is quoted at from $2.55 to $3.00; while the flake and the ground are selling at from $2.95 to $3.00 per 100 pounds, in large drums, at works.

CHINA CLAY.—The china clay market is much firmer due to the fluctuations of foreign currencies. Imported china clay is now quoted at from $12 to $17 per ton, ship side; while domestic paper making clay is selling at from $5 to $12 per ton, at mine.

CHLORINE.—Conditions in the chlorine market are improving. Demand from the paper mills is fairly persistent. Prices are holding to schedule. Chlorine is quoted at $1.75 per 100 pounds, in tanks, or multi-unit cars, in ton lots, or over, at works.

ROSIN.—The rosin market is decidedly firmer. Grades of gum rosin used in the paper mills are quoted at from $4.40 to $4.85 per 280 pounds, in barrels, at works; while wood rosin is selling at $3.10 per 280 pounds, in barrels, at southern shipping points.

SALT CAKE.—Trading in the salt cake market is fairly active. Prices remain unchanged. Salt cake is quoted at from $12.50 to $13.00; chrome salt cake at from $11.50 to $12.50 per ton, at works; imported salt cake at from $12.50 to $13.00 per ton, on dock.

SODA ASH.—The soda ash market is exhibiting a fairly strong tendency. Contract shipments are moving with regularity. Quotations on soda ash, in car lots, at works, per 100 pounds, are as follows: in bulk, $1.05; in bags, $1.30; and in barrels, $1.43.

STARCH.—Following gains in basic grain quotations, the starch market again advanced materially. Demand is fairly brisk. Special paper making starch is now quoted at $2.64 per 100 pounds, in bags; and at $2.91 per 100 pounds, in barrels, at works.

SULPHATE OF ALUMINA.—Paper mill demand for sulphate of alumina is better. Prices are holding to schedule. Commercial grades are quoted at from $1.25 to $1.46; while iron free is selling at from $1.90 to $2.05 per 100 pounds, in barrels, at works.

SULPHUR.—The sulphur market is steady. Sulphur is quoted at $18 per long ton, on orders of 1,000 tons, or over, on yearly contracts; and at $20 per ton on any smaller quantity over that period. On spot and near by car loads, the quotation is $21 per ton.

TALC.—Most of the business transacted in the talc market during the past week was along routine lines. Domestic talc is quoted at from $16 to $18 per ton, in bulk, at eastern mines; while imported talc is selling at from $18 to $22 per ton, ship side.

Market Quotations

Paper

(F. o. b. Mill)

Ledgers	6.50	@	38.00
Bonds	4.75	@	53.25
Index	6.00	@	12.00
Writings—			
Extra Superfine	6.50	@	15.00
Superfine	6.25	@	14.75
Tub sized	4.50	@	7.00
Engine sized	4.00	@	5.00
Book, Cased—			
S. & S. C.	4.25	@	5.00
M. F.	3.75	@	4.25
Coated and Enamel	5.00	@	9.00
Lithograph	5.00	@	9.00
Tissues—Per Ream—			
White No. 1	.50	@	.70
White No. 2	.45	@	.60
Anti-Tarnish M. G. only	.65	@	.70
Colored	.70	@	.90
Kraft	.65	@	.70
Manila	.55	@	.60
Manila—			
No. 1 Jute	9.00	@	9.25
No. 2 Jute	7.75	@	8.50
No. 1 Wood	4.00	@	5.25
No. 2 Wood	3.50	@	4.00
Butchers	3.37½	@	—
Fibre Papers—			
No. 1 Fibre	4.25	@	5.50
No. 2 Fibre	4.00	@	4.75
Common Bogus	1.50	@	3.00
Screenings	2.00	@	3.00
Card Middles	4.00	@	5.00
Glassine—			
Bleached, basis 25 lbs., No. 1	.09¾	@	—
No. 2	.11¾	@	—
Bleached, basis 20 lbs.	.11¾	@	—

(Delivered New York)

News, per ton—			
Roll, contract	40.00	@	—
Rolls, spot	40.00	@	—
Sheets	45.00	@	—
Side Runs	25.00	@	—
Kraft—			
No. 1 Domestic	4.50	@	4.75
No. 2 Domestic	2.75	@	3.00
Southern	2.62½	@	3.00
Imported	2.75	@	3.50
Boards—per ton—			
News	32.50	@	35.00
Straw	29.50	@	31.50
Chip	30.00	@	32.50
Binders' Boards	62.00	@	70.00
Kraft Liner	40.00	@	45.00
Standard 85 Test Jute Liner	27.75	@	30.00
Sgl. Mla. Lt. Chip	37.50	@	40.00

(F. o. b. Mill)

Wood Pulp Boards	70.00	@	80.00

Mechanical Pulp

(On Dock, Atlantic Ports)

No. 1 Imported—			
Moist	19.00	@	21.00
Dry	19.00	@	21.00

(F. o. b. Mill)

No. 1 Domestic and Canadian	14.00	@	22.00

Chemical Pulp

(On Dock, Atlantic Ports)

Sulphite (Imported)—			
Bleached	1.90	@	2.40
Easy Bleaching	1.60	@	1.75
No. 1 strong unbleached	1.50	@	1.65
Mitscherlich unbleached	1.60	@	1.75
No. 2 strong unbleached	1.35	@	1.40
No. 1 Kraft	1.25	@	1.40
No. 2 Kraft	1.10	@	1.15
Sulphate—			
Bleached	1.85	@	2.15

(F. o. b. Pulp Mill)

Sulphite (Domestic and Canadian)—			
Bleached	1.75	@	3.75
Easy Bleaching	1.60	@	1.75
News	1.40	@	1.65
Mitscherlich unbleached	2.00	@	2.25
Kraft (Domestic)	1.25	@	2.75

(Delivered Paper Mills)

Soda Bleached	2.00	@	—

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1	3.80	@	4.25
Silesias No. 1	3.00	@	3.25
New Unbleached	5.25	@	5.75
New Soft Blacks	2.75	@	3.00
Blue Overall	2.50	@	3.00
Fancy	1.25	@	1.50
Washables	1.00	@	1.25
Mixed Khaki Cuttings	2.25	@	2.50
Pink Corset Cuttings	2.75	@	3.25
O. D. Khaki Cuttings	2.50	@	3.00
Men's Corduroy	1.00	@	1.25
New Mixed Blacks	2.25	@	2.50

Old Rags

White, No. 1—			
Repacked	3.00	@	3.50
Miscellaneous	2.00	@	2.25
White, No. 2—			
Repacked	1.75	@	2.00
Miscellaneous	1.50	@	1.75
Thirds and Blues—			
Repacked	1.50	@	1.75
Miscellaneous	1.00	@	1.25
Black Stockings	2.00	@	2.25
Roofing Rags—			
No. 1	.53	@	.58
No. 2	.48	@	.53
No. 3	.43	@	.48
No. 4	.38	@	.43
No. 5A	.33	@	.38

Foreign Rags

New Rags

New Dark Cuttings	1.50	@	1.60
New Mixed Cuttings	1.60	@	1.70
New Light Silesias	3.25	@	3.50
Light Flannelettes	3.00	@	3.25
Unbleached Cuttings	5.00	@	5.25
New White Cuttings	4.50	@	4.75
New Light Oxfords	3.25	@	3.50
New Light Prints	2.00	@	2.25

Old Rags

No. 1 White Linens	5.75	@	6.00
No. 2 White Linens	5.00	@	5.25
No. 3 White Linens	4.00	@	4.25
No. 4 White Linens	2.00	@	2.25
No. 1 White Cotton	3.75	@	4.00
No. 2 White Cotton	3.00	@	3.25
No. 3 White Cotton	2.50	@	2.75
No. 4 White Cotton	1.50	@	1.60
Extra Light Prints	2.00	@	2.25
Ord. Light Prints	1.75	@	1.85
Med. Light Prints	1.55	@	1.65
Dutch Blue Cottons	1.50	@	1.80
French Blue Linens	2.10	@	2.25
German Blue Linens	1.85	@	2.00
German Blue Cottons	1.35	@	1.50
Checks and Blues	1.30	@	1.40
Lindsay Garments	.90	@	1.00
Dark Cottons	.75	@	.80
Old Shopperies	.65	@	.70
New Shopperies	.65	@	.70
French Blues	1.40	@	1.50

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—			
Foreign	.90	@	1.00
Domestic	1.00	@	1.10
Wool Tares, light	.85	@	.90
Wool Tares, heavy	.85	@	.90
Bright Bagging	.80	@	.85
Small Mixed Rope	.60	@	.65
Manila Rope—			
Foreign	1.60	@	1.70
Domestic	1.60	@	1.75
New Burlap Cut	1.25	@	1.50
Hessian Jute Threads—			
Foreign	2.60	@	2.75
Domestic	2.80	@	3.00

Old Waste Papers

(F. o. b. New York)

Shavings—			
White Envelope Cuttings	2.00	@	2.10
Ordinary Hard White No. 1	1.70	@	1.80
Hard White No. 2	1.50	@	1.60
Soft White No. 1	1.45	@	1.55
Flat Stock—			
Stitchless	.65	@	.70
Overissue Mag	.65	@	.70
Solid Flat Book	.55	@	.65
Crumpled No. 1	.45	@	.50
Solid Book Ledger	1.50	@	1.75
Ledger Stock	.45	@	.55
New B. B. Chips	.20	@	.25
Manilas—			
New Env. Cut	1.35	@	1.45
New Cuttings	1.00	@	1.05
Extra No. 1 old	.80	@	.90
Print	.35	@	.40
Bogus Wrapper	.30	@	.35
Container	.25	@	.30
Old Kraft Machine—			
Compressed bales	.65	@	.75
News—			
No. 1 White News	1.00	@	1.05
Strictly Overissue	.50	@	.55
Strictly Folded	.43	@	.48
No. 1 Mixed Paper	.25	@	.30

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A study of the Directory of The Fifth Avenue Building reveals a long list of names famous in many and varied lines of industry. It is a veritable Blue Book of trade leaders. Among the many lines represented by the clientele of this famous building are leaders in paper and pulp manufacturing, paper merchants, paper mill agents, paper mill supplies, paper and pulp mill engineers, paper-box board and paper products manufacturers. Also located in The Fifth Avenue Building are leaders in stationery, greeting cards, gifts, novelties, electrical goods, housefurnishings, office equipment, china, glass, toys and many others. Here buyers can place orders for the entire season without leaving the building, serviced by every convenience a modern office building affords.

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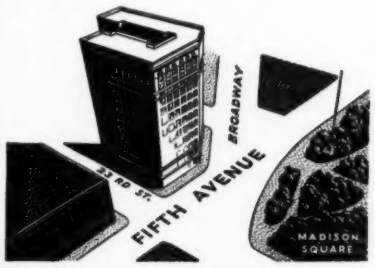

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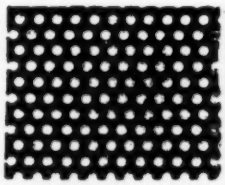

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MAY REFERENCE—HOBERG PAPER & FIBRE CO.

Twines
(F. o. b. Mill)

Cotton—		
B. C., 18 basis	.30	.32
No. 1	.20	.22
No. 2	.19	.20
No. 3	.17	.18
A. Italian, 18 basis	.36	.37
Finished Jute—		
Dark, 18 basis	.18	.20
Light, 18 basis	.20	.22
Jute Wrapping, 3-6 Ply—		
No. 1	.15½	.16½
No. 2	.11¼	.12¼
Tube Rope—		
4-ply and larger	.08¼	.10¼
Fine Tube Rope—		
4-ply	.12¼	.12½
3-ply	.13¼	.13½
2-ply	.14¼	.14¾
Paper Makers Twine		
Balls	.09¼	.11¼
Box Twine, 2-3 ply	.11¼	.12¾
Jute Rope	.09	.10
White Hemp	.12¾	.15¾
Java Sisal—		
No. 1 Basis	.10	—
No. 2 Basis	.09	—
New Zealand Sisal	.10	—
Sisal Lath Yarn—		
No. 1	.12	.14
No. 2	.10	.12
Manila Twine	.23	.28

CHICAGO

Paper
(F. o. b. Mill)

Rag Bond	.30	.53¼
Water Marked Sulphite Bond	.09	.12
Sulphite Bond	.04	.11
Superfine Writing	.18	.24
No. 1 Fine Writing	.14	.18
No. 2 Fine Writing	.12	.14
No. 3 Fine Writing	.07	.18
No. 1 M. F. Book	.06½	.07¾
No. 2 M. F. Book	.05¾	.06¾
No. 1 S.&S.C. Book	.06¾	.07¾
No. 2 S.&S.C. Book	.05¾	.06½
Coated Book	.07½	.12
Coated Label	.07½	.10
No. 1 Manila	.04¾	.05¾
No. 1 Fibre	.04¾	.05½
No. 2 Manila	.04½	.04¾
Butcher's Manila	.03¾	.03¾
No. 1 Kraft	3.50	4.50
Southern Kraft	2.62½	—
No. 2 Kraft	2.62½	—
Wood Tag Boards	.04¼	.06¾
Sulphite Screenings	.03	.03½
Manila Tissue	.07	.07½
White Tissue	.07¼	.07½

(Delivered Central Territory)

News, per ton—		
Rolls, contract	45.00	—
Sheets	50.00	—
Boards, per ton—		
Plain Chip	27.50	—
Solid News	30.00	—
Manila Lined Chip	37.50	—
Patent coated	47.50	—
Container Lined—		
85 Test	50.00	55.00
100 Test	55.00	60.00

Old Papers
(F. o. b. Chicago)

Shavings—		
No. 1 White Envelope cuttings	1.50	1.55
No. 1 Hard White	1.40	1.45
No. 1 Soft White	1.00	1.10
Ledger & Writings	.55	.60
Solid Books	.45	.50
Blanks	1.00	1.05
Krafts	.70	.80
New Kraft Cuts	1.15	1.25
Manila Env. Cuts	1.25	1.30
Ex. No 1 Manila	.90	1.00
Print Manila	.30	.40
Overissue News	.45	.50
Old Newspapers—		
No. 1	.45	.50
Mixed Papers—		
No. 1	.25	.30
Roofing Stocks—		
No. 1	30.00	—
No. 2	28.00	—

PHILADELPHIA

Paper
(F. o. b. Mill)

Bonds	.04	.40
Ledgers	.06	.40
Writings—		
Superfine	.10	.18
Extra Fine	.15	.26
Fine	.15	.26
Fine, No. 2	.10	.25
Fine No. 3	.05½	.18
Book, M. F.	.04¾	.07
Book, S. S. & C.	.05	.07½
Book, Coated	.06	.16
Coated Lithograph	.06	.11
Label	.07	.11
No. 1 Jute Manila	.06	.09
Manila Sul., No. 1	.03	.05
Manila No. 2	.03	.04
No. 1 Kraft	.05¾	.06
No. 2 Kraft	.03¾	.04¾
Southern Kraft No. 1	—	.03¾
Southern Kraft No. 2	—	.02¾
Common Bogus	.03	.04

(Delivered Philadelphia)

News Print Rolls	46.00	—
Straw Board	32.00	—
News Board	30.00	—
Chip Board	30.00	—
Wood Pulp Board	70.00	80.00
Binder Boards—		
No. 1, per ton	73.00	75.00
No. 2, per ton	62.00	65.00
Carload lots	60.00	65.00
Tarred Felts—		
Regular	52.25	54.25
Slaters (per roll)	.84	.94
Best Tarred, 1-ply (per roll)	1.95	2.10
Best Tarred, 2-ply (per roll)	1.50	1.60
Best Tarred, 3-ply	2.00	2.25

Domestic Rags (New)
(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—		
New White, No. 1	.03½	.04
New White, No. 2	.02½	.04
Light Silesias	.02½	.03
Silesias, No. 1	.03	.03½
Black Silesias, soft	.02½	.03
New Unbleached	.05	.05½
Washable, No. 1	.01	.01½
Blue Overall	.03	.03½
Cottons—According to grades—		
Washable, No. 2	.01	.02
New Blue	.01	.02
Fancy	.01½	—
New Black Soft	.02	.03
New Light Seconds	.01	.02
New Dark Seconds	1.50	1.75
Khaki Cuttings—		
No. 1 O.D.	.03	.03½
No. 2 Mixed	.02½	.03
Corduroy	.02	.02½
New Canvas	.03½	.04
New Black Mixed	.02½	.03

Domestic Rags (Old)

White No. 1—		
Repacked	2.50	3.00
Miscellaneous	1.75	2.00
M. G.	3.00	3.50
Thirds and Blues—		
Miscellaneous	1.00	1.25
Repacked	1.50	1.75
Black Stockings (Export)	2.00	3.50
Roofing Stock—		
Foreign No. 1	.50	.75
Repacked	.70	.80

Bagging
(F. o. b. Phila.)

Gunny, No. 1—		
Foreign	1.25	1.50
Domestic	1.50	—
Manila Rope	2.00	2.25
Sisal Rope	1.25	1.50
Mixed Rope	1.00	1.10
Scrap Burlaps—		
No. 1	1.25	1.50
No. 2	.80	1.00
Wool Tares, heavy	2.75	—
Mixed Strings	1.15	1.25
No. 1 New Light Burlap	2.25	2.50
New Burlap Cuttings	2.00	2.25

Old Papers
(F. o. b. Phila.)

Shavings—		
No. 1 Hard White	1.60	1.70
No. 2 Hard White	1.50	1.60
No. 1 Soft White	1.40	1.45
No. 2 Soft White	1.10	1.15
No. 1 Mixed	.50	.60
No. 2 Mixed	.40	.50
Solid Ledger Stock	1.20	1.25
Writing Paper	.65	.70
No. 1 Books, heavy	.55	.60
No. 2 Books, light	.40	.45
No. 1 New Manila	1.10	1.15
No. 1 Old Manila	.60	.65
Print Manila	.40	.45
Container Manila	.40	.45
Old Kraft	.80	.85
Common Paper	.22½	.25
No. 1 Mixed Paper	.20	.30
Straw Board, Chip	.20	.30
Binders Board Chip	.20	.30
Corrugated Board	.35	.40
Overissue News	.50	.60
Old Newspaper	.40	.45

BOSTON

Paper
(F. o. b. Mill)

Ledgers—		
Sulphite	.06	.12½
Rag Content	.12	.30
All Rag	.36	.52½
Bonds—		
Sulphite	.05¾	.11½
Rag Content	.12	.30
All Rag	.36	.65
Writings	.06½	.20
Superfines	.11	.31
Book, Super	.06	.09
Book, M. F.	.05½	.08½
Book, Coated	.08½	.18
Coated Litho	.09	.12
Label	.09½	.15
Jute Manila No. 1	.11	.13
Manila, Sul. No. 1	.04¾	.06¾
Manila, Sul. No. 2	.03¾	.04½
No. 1 Kraft	—	.04¾
No. 2 Kraft	.02¾	—

(F. o. b. Boston)

Southern Kraft	.02¾	—

(F. o. b. destination in carload lots, f. o. b. mill in less than carload lots.)

Common Bogus	.02	.02¾

(Delivered New England points)

News Print, rolls	44.50	—
Straw Board, rolls	.009	35.00
Straw Board in Sheets, basis 35s to 70s	—	40.00
Filled News Board	30.00	—
Chip Board	27.50	—
Chip Board (Creasing)	27.50	30.00
Single Manila Lined Chip	—	37.50
Single White, Patent Coated News Board—Bender	45.00	55.00
Wood Pulp Board	70.00	75.00
Binder Boards	62.00	75.00

Old Papers
(F. o. b. Boston)

Shavings—		
No. 1 Soft White	1.25	1.40
No. 1 Old Manila	.50	.60
No. 1 Mixed	.60	.70
No. 2 Mixed	.40	.50
Solid Ledger Books	1.20	1.40
Overissue Ledger Stock	1.15	1.30
Manila Env. Cuttings	1.25	1.30
No. 1 Old Manila	.50	.60
White Blank News	.85	.90
No. 1 Kraft	.80	.85
Manila	.80	.90
No. 1 Mixed Papers	.20	.22½
Print Manila	.30	.40
Overissue News	.35	.45
Old Newspapers	.32½	.37½
Box Board, Chip	.17½	.20
Corrugated Boxes	.25	.30
Screening Wrappers	.25	.32½

Bagging
(F. o. b. Boston)

Manila Rope—		
Foreign	—	1.40
Domestic	—	1.60
Transmission Rope	—	.90
Mixed Strings	.25	.30
Jute Rope	—	.75
Jute Carpet Threads	.25	.30
Gunny No. 1—		
Foreign	1.00	—
Domestic	.80	—
Bleachery Burlap	1.75	2.00
Scrap Burlap	.50	.62½
No. 1 Scrap Burlap	.60	.70
Scrap Sisal	.80	—
Scrap Sisal for shredding	—	.90
Wool Tares, heavy	.65	.75
New Burlap Cutting	.75	.90
Australian Wool Pouches	1.75	2.00
Heavy Baling Bagging	.90	1.10
Paper Mill Bagging	.30	.35
Bagging No. 2	.20	.25
No. 1 Burlap	1.75	2.00

Domestic Rags (New)
(F. o. b. Boston)

Shirt Cuttings—		
New Light Prints	—	.01½
New White No. 1	—	.03½
New White No. 2	.02¾	.03¼
Silesias No. 1	—	.02
New Black Silesias	.02½	.02¾
New Unbleached	—	.04½
Fancy	—	.02¼
Washable	—	.01¼
Cottons—According to grades—		
Blue Overalls	—	.03¾
New Black, soft	.04	.04½
Khaki Cuttings	.03	.03½
O. D. Khaki	.03½	.03¾
Corduroy	.01¾	.02
New Canvas	—	.05
B.V.D. Cuttings	.04	.04¼

Domestic Rags (Old)
(F. o. b. Boston)

Canvas	.04½	—
White No. 1—		
Repacked	3.00	3.50
Miscellaneous	1.50	1.75
White No. 2—		
Repacked	.02¾	.02½
Miscellaneous	.02	.02¼
Twos and Blues	.90	1.00
Thirds and Blues—		
Repacked	.75	.85
Miscellaneous	.70	.75
Black Stockings	2.00	2.25
Roofing Stock—		
No. 1	.40	.45
No. 2	.35	.40
No. 3	.25	.30

Foreign Rags
(F. o. b. Boston)

Dark Cottons	.50	.60
New No. 1 White Shirt Cuttings	3.75	4.00
Dutch Blues	1.25	1.50
New Checks & Blues	2.25	2.50
Old Fustians	—	.75
Old Linsey Garments	.55	.65

TORONTO

Paper
(F. o. b. Mill)

Bond—		
No. 1 Sulphite	.09¾	—
No. 2 Sulphite	.08	—
No. 1 Colored	.10¼	—
No. 2 Colored	.08½	.10½
Ledgers (sulphite)		
Ledgers, No. 1	.34½	—
Ledgers, No. 2	.25½	—
Writing	.09	.09½
Book—		
No. 1 M. F. (Carloads)	6.20	—
No. 3 M. F. (Carloads)	5.70	—
No. 4 M. F. (carloads)	4.75	—
No. 1 S. C. (carloads)	6.65	—
No. 3 S. C. (carloads)	6.20	—
No. 4 S. C. (carloads)	5.20	—
No. 1 Coated and Litho	12.00	—
No. 2 Coated and Litho	10.50	—
No. 3 Coated and Litho	9.50	—
Coated tinted	14.00	—
Wrapping—		
Rag Brown	4.25	—
White Wrap	2.00	—
"B" Manila	4.75	—
No. 1 Manila	5.25	—
Fiber	5.25	—
Kraft, M. F.	5.75	—
Kraft No. 2	5.25	—

(F.O.B. Cars Toronto)

News, per ton—		
Rolls (contract)	45.50	—
Sheets	50.50	—

Pulp
(F. o. b. Mill)

Ground Wood	18.00	20.00
Sulphite easy bleaching	40.00	—
Sulphite, news grade	38.00	—
Sulphite, bleached	45.00	50.00
Sulphate	50.00	—

Old Waste Paper
(In carload lots, f. o. b. Toronto)

Shavings—		
White Env. Cut	1.80	—
Soft White	1.40	—
White Blk. News	1.25	—
Book and Ledger—		
Flat Magazine and Book Stock (old)	.90	—
Light and Crumpled Book Stock	.80	—
Ledgers and Writings	1.00	—
Manilas—		
New Manila Cut	1.25	—
Printed Manilas	.55	—
Fancy Shirt Cuttings	.02¾	.02½
Kraft	1.25	—
News and Scrap—		
Strictly Overissue	.50	—
Strictly Folded	.50	—
No. 1 Mixed Paper	.40	—

Domestic Rags
(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.04¼	.04¾

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PAPER TRADE JOURNAL

ESTABLISHED 1872

SIXTY-FIRST YEAR

THE INTERNATIONAL WEEKLY OF THE PAPER AND PULP INDUSTRY AND THE PIONEER PUBLICATION IN ITS FIELD

Published Every Thursday by the
LOCKWOOD TRADE JOURNAL CO., Inc.

GEO. S. MACDONALD, President. J. BANNINGA, Sec.-Treas.

Published at 34 No. Crystal St., East Stroudsburg, Pa.
Executive and Editorial Offices: 15 West 47th Street, New York
Chicago Office: 123 West Madison St.

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Want and For Sale Advertisements, 44-45

Announcing

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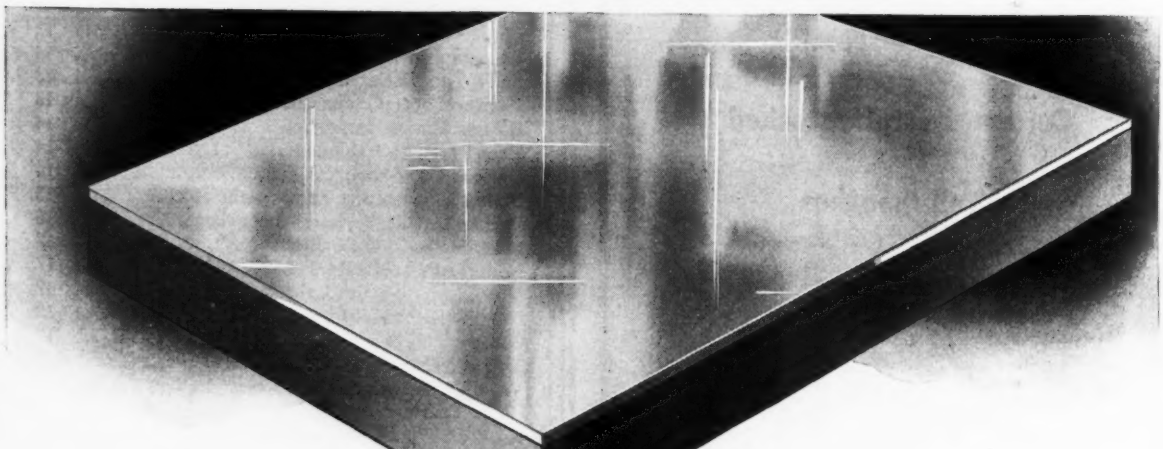

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